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# The Determinants of E-recruitment and its effect on HRM Capabilities and the Firm's Performance: Evidence from Saudi Arabia Context

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# **RESEARCH WITH PLYMOUTH UNIVERSITY**

**The Determinants of E-recruitment and its effect on HRM Capabilities and  
the Firm's Performance: Evidence from Saudi Arabia Context**

**By**

**Sulaiman Saleh Alateyah**

*A thesis submitted to the Plymouth University in partial fulfilment for the  
degree of*

***DOCTORAL OF PHILOSOPHY***

***Plymouth Business School***

***2016***

## **Dedication**

*To my father, my mother may Allah mercy her, my uncle His Excellency Dr. Ali Alatiyah who has the favour for me to complete my post graduate studies, my wife and kids, my cousin Mr. Essam bin Hamad Alatiyah and to my friend Mr. Wasel Alwasel.*

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*I would like to extend my profound thanks to my supervisors Dr. Ahmed El-Masry and Dr Moji Olugbode*

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## Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee.

Work submitted for this research degree at the University of Plymouth has not formed part of any other degree either at the University of Plymouth or at another establishment.

I hereby declare that the material contained in this thesis has not been previously submitted for a degree in this or any other university. I further declare that this thesis is solely based on my own research.

**Sulaiman Saleh Alateyah**

Signed .....   
Date ..... 13.05.2018



## **Abstract**

The study has been conducted to examine the direct and indirect relationship between the determinants of electronic recruitment and firm performance through the mediating role of human resources management capabilities based on the resource based view theory. Therefore, this study examines the relationship between the internal determinants of e-recruitment (technology quality, service quality, and security assurance) and the external determinants (e.g. empowered manager and member team, content of an implementation plan for e-recruitment, HR and IT collaboration in e-recruitment, job seeker trust in e-recruitment, organizational reputation, decentralization of selection decision, and government objectives) on e-recruitment, and the effect of e-recruitment on HR capability and firm performance.

This study adopted a positivist philosophy. A deduction approach and quantitative method were also suitable for this study. A questionnaire was delivered to some companies in Saudi Arabia. A total of 500 questionnaires were sent, but only 418 were received; for 84.0 percent response rates. This study used PLS to test the research hypotheses. The measurement model has confirmed that the measure indicates accepted reliability and validity. Based on the research results, most hypotheses are accepted. This means that the e-recruitment play a crucial role in improving firm performance. The findings of this study support the argument that e-recruitment plays an important role in improving firm performance. Therefore, firms that use e-recruitment to attract new job seekers will improve their performance. These findings extend prior literature by showing, for the first time, how e-recruitment and HR capability influence firm performance.

This study has confirmed that e-recruitment has a positive and significant effect on firm performance. These variables account for 43% and 78% of the variety in HR capability and firm performance, respectively, whereas 57% and 22% are related to other variables. This finding is consistent with the argument that if firm use e-recruitment, they are more likely to improve firm performance. Moreover, high HR capability enhances firm performance.

Our study moves beyond previous studies that focus on e-recruitment by correlating e recruitment with HR capability and firm performance. This study contributes by arguing that e-recruitment and HR capability has a positive relation towards firm performance, which conforms to previous studies in similar areas. Apart from the re-examination of resource-based theory in the online recruitment context, our study attempts to make some other fundamental contributions in understanding e-recruitment in the Saudi Arabia context.

However, given that this is the first known test of resource-based theory in the Internet recruiting domain, we recommend that future research be done to conduct additional tests of this theory. These findings have both theoretical and practical implications in that the results have provided empirical evidence on the indirect impact of e-recruitment on firm performance and can serve as an indication in practice for firms in understanding e-recruitment and its effects on firm performance. The current study would help professionals in the field of HR to enhance their awareness of the critical role that recruiting highly skilled applicants may play in terms of sustainable competitive advantage and firm performance.

**Keywords:** *E-Recruitment; HR Capabilities, Firm Performance, Saudi Arabia Context.*

# **CHAPTER ONE: INTRODUCTION**

## **1.1 Introduction**

The organisational environment has recently seen a rapid development of internet technology to create organisational capabilities (Patas et al., 2012; Mithas & Rust, 2016; Furr & Kapoor, 2017). A series of empirical studies has shown that the successful use of electronic services in the business world can not only create market opportunities through changing an organisational model, optimising organisational structures and processes and improving market penetration, but can also significantly enhance organisational capabilities by recruiting the right employees to work in organisations, increasing valuable customer relationships through competitive market prices, and improving organisational competitiveness through the innovative use of technologies (Nevo & Wade, 2008).

Based on the above, Peteraf & Barney (2003) assert that resources-based analysis focuses on the fact that human resources capabilities, selection and positioning are among the higher priorities of organisation strategy. Such an analysis is influenced by external environment forces and will dominantly affect an organisation performance, which will be the main contribution of this study. Therefore, selecting the strategic resources of an organisation is an integrative and complicated process, which is going to determine the firm's competitive advantage and then its performance in the future (Peteraf & Barney, 2003; Albrecht et al., 2015). This chapter discusses the statement of the problem, research aim and objectives, summary of research methodology, and research outlines.

## **1.2 Statement of the Problem**

The number of Internet users around the world is steadily increasing and this has created an opportunity for companies to conduct their business transactions online (Japhet & Usman, 2010; Bondarouk, et al., 2015). However, this has resulted in a highly competitive marketplace for online companies to be in (Zhilin et al., 2004). E-recruitment is a subject often discussed in the specialized literature. In the mid of 1990s the Internet appears for the first time as a recruitment tool, giving rise to a phenomenon called in that time recruiting revolution (Japhet & Usman, 2010). Over the years, several synonymous terms describing the notion of e-recruitment were identified: e-recruitment, web-based recruiting, online

recruiting, and web recruiting, recruiting online, recruiting on the internet, electronic resume, internet recruiting, (Wolfswinkel, et al., 2010; Simón & Esteves, 2016).

Although organisations and HR professionals have been increasingly using technologies as a part of their recruitment strategy, such use is not well understood by academic researchers. Several scholars have highlighted a large asymmetry between organisational practice and scholarly research on the use of technologies (e.g. Black & Johnson, 2012; Davison, Maraist & Bing, 2011; Kluemper, 2013; Roth et al., 2013; Bondarouk, 2016). A review of literature shows only a handful of studies examining different aspects of organisations' use of technologies. This has predominantly centred on the applicants' reactions towards the use of technologies (Stoughton et al., 2013).

In view of the positive inclination towards the adoption of technologies among organisations, it is expected that rigorous research be conducted to examine the process of adoption e-recruitment, particularly from an organisational perspective. As Nah and Saxton (2013) noted, the organisational adoption of e-recruitment is an important topic that needs to be empirically investigated since these technologies can be a 'game changer' for the future success of the organisation in employing and retaining quality hires. Understanding the process of adoption becomes more important in the context of Saudi Arabia given the existing gap in technologies' penetration rates between Saudi Arabia companies and those in other developed countries, such as United States and Eurozone. In 2012, LinkedIn reported that only 20 cent of the top ASX200 companies were using recruiting solutions offered by this company, whereas the same report showed more than 98 cent of adoption rate for the US firms listed in Fortune500 (LinkedIn, 2013). Similarly, a study of corporate LinkedIn practices amongst Eurozone firms revealed that more than 79 cent of 306 companies listed in the STOXX Europe 6002 were using LinkedIn as a recruiting tool (Bonsón & Bednárová, 2013).

The adoption rate of e-recruitment is even less encouraging when it comes to Saudi Arabia Enterprises. Clearly, Saudi Arabia organisations are lagging behind their American and European counterparts in adopting e-recruitment for reasons that are so far unknown. Thus, the primary purpose of this study is to provide a solid theoretical foundation to better understand how organisations make the decision to adopt e-recruitment. More specifically, a theoretical model outlining key determinants of the organisational decision to adopt e-recruitment will be developed and empirically validated. Second, the research in the area of

e-recruitment outcomes remains very limited and largely pertinent to their post-hire outcomes, such as future job performance (e.g. Sinar, 2013; Van Iddekinge et al., 2013; Glaister, et al., 2017), employee commitment or turnover intentions (e.g. McLarty et al., 2013), and Person-Job/Organisation fit (e.g. Roulin & Bangerter, 2013). Despite that numerous non-academic sources, Jobvite (2014) has reported several possible benefits of using e-recruitment (such as timeliness, quality of hire, and cost efficiency), the empirical evidence on the relevance of these technologies in terms of their outcomes is almost non-existent (see Chapter 2 for details). The outcomes of the recruitment process are considered as a primary interest to organisations when deciding on the recruitment channel to be adopted (Braughet al., 2008; Rynes et al., 2014).

With the rapid growth of the e-recruitment web sites, this has altered the way jobseekers are looking for jobs, and the way companies are recruiting them but little is known of their effects on the firm performance. Accordingly, in this study, it leads to the reviewing and understanding of the job search and information technology (IT) literatures. Combining these literatures, this study uses the highly validated Resource Based View Theory (RBV) as the research framework to analyse and understand the determinants of e-recruitment and its effects on firm performance. The spread of this e-recruitment business to gulf countries, particularly in Saudi Arabia seemed desirable to test the local jobseekers' perceptions and experiences on e-recruitment and its effects on performance.

According to Suvankulov (2013), research on e-recruitment and their link to firm performance in most cases does not address the issue of HRM capabilities. Investigations on the link between HRM capabilities and organizational performance has extensively been done in the US and the UK. Several authors point out that research needs to be conducted in other contexts (Suvankulov, 2013). Despite the overall implications of HRM capabilities and regardless of studies indicating that best HRM practices are a cause of employee satisfaction, HRM practices remain a tactic not employed much by organizations to improve firm performance. Indeed, there are limited studies to demonstrate that e-recruitment can enhance firm performance through HRM capabilities. The main objective of this study was to examine how e-recruitment influences firm performance through HRM capabilities in Saudi Arabia context. Therefore, the aim of the current research is to fill up this gap in order to inform organisational decision makers about the implications of using e-recruitment and its effect on firm performance.

In order to deal with the above research problems, the following research questions have been framed:

RQ1: What are the determinants of e-recruitments?

RQ3: Does e-recruitment influence on firm performance?

RQ4: Does human resources capabilities mediate the relationship between e-recruitment and firm performance?

### **1.3 Research Aim and Objectives**

All the activities carried out by the organization to attract the potential candidate are termed as E- Recruitment. It is an important part of human resource management as it performs the essential function of attracting the human capital into the organization (Barber, 2006). By the entry of internet technology the traditional method of recruitment like placing ads in newspaper, waiting for the CVs, registering in the employment exchanges etc are disappearing. The rapid advance of technology has dramatically changed the way the business is conducted and this increasing use of technology is clearly demonstrated by the number of organization and individual who utilize the internet and electronic mail.

Due to Saudiazation policy in 2011, organisations are encouraged to hire and support Saudi nationals at work. As a result, it becomes a challenge finding qualified Saudi candidate with right skill. Challenges was there while implementing national policy, few businesses adopted fake Saudiazation, and some businesses were close down for not meeting quality and competency of expats (Peck, 2014; AlSheikh & Erbas, 2012; Hamari, et al., 2017). Issue arises further with lack of individual effort in finding job, Saudi workers either prefer bureaucratic managerial jobs or they rely on government support (Al Maeena, 2016). Another sad fact is that huge public funding has gone into education in Saudi Arabia but graduates cannot find jobs. Insufficient information flow between different labour and education sector contribute further to problem, thus require more synergized and aligned efforts in identifying future job requirements of the economy (Al Sheikh, 2015). The availability of up-to-date and complete information on job seekers and potential employers in the public and private sector would be an important element of managing labour efficiently (Al-Asmari, 2008). In such scenario, attracting right candidate is essential, for that the most cost efficient method of pooling suitable candidate is e-recruitment also job seekers prefer to use e-recruitment for a vacancy searching (Bharwani & Butt, 2012; Allen et al., 2007; Simón & Esteves., 2016).

Reviewing the above literature identify that the use of e-recruitment definitely speeds up, reduce costs, and provide information concerning vacancies, further effectiveness of e-recruitment depends upon advertisement placement, aesthetics elements: combination of appealing colours, fonts, and images (Braddy, 2006). Job seekers appear to prefer companies with more attractive websites features to companies. For job seekers, rigid, structured and boring e-recruitment can be detrimental factor to destroy brand image. Adopting unique way can be a differentiation factor which can have positive impact on users. It requires constant web-improvement, measuring productivity and utilisation of feedback mechanism. It is further noted that usage of technology varies between countries therefore demographical factor need to be investigated in enhancing the online recruitment process based on the users' preference and requirement. As existing literature indicated that hard navigation, incomplete information, service quality and boring website feature can affect users' mood and perception regarding corporate reputation (Brahmana, 2013; Palmer, 2002; Allen et al., 2007; Xu et al., 2016). Therefore, the key aim of the study is to propose and test a conceptual model that discovers the direct and indirect relationships between e-recruitment and firm performance, with the mediating role of human resources capabilities. In summary, the study aims to:

- Identify the internal and external determinants of e-recruitment.
- To examine the influence of e-recruitment on firm performance.
- To understand the mediating role of HRM Capabilities in the relationship between e-recruitment and firm performance.

The study enhances our knowledge and understanding of the factors that influence e-recruitment and its effects on firm performance in emerging markets. Based on the findings, tentative policy recommendations to enhance the individual investor's decision-making in emerging countries are proposed.

#### **1.4. Current Gaps in the Literature**

With increasing acceptance of the Internet as a source for e-recruitment, the use of electronic recruitment, also called e-recruitment, in the developed countries is rapidly becoming one of the fastest-growing recruitment techniques (Lawrence, et al., 2007; SHRM, 2008; Xu et al., 2016). Despite the apparently widespread use of e-recruitment, a gap seems to have emerged

between research and practice (García-Izquierdo et al., 2010), and this is possibly because scholars are struggling to keep up with the sheer pace of change (Anderson, 2003). The increasing number of research contributions tends to focus on the design of corporate recruitment websites (Selden & Orenstein, 2011; Hinojosa, et al., 2015), applicants' perceptions of career websites (Sylva & Mol, 2009; Williamson, et al., 2010), and e-recruitment system design (Furtmueller, et al., 2011; Lee, 2007). So far, however, there has been few academic research on the subject from an organisational, i.e. recruiters', perspective (Parry & Wilson, 2009; Wolfswinkel et al., 2010; Xu et al., 2016). Here, the organisational perspective refers to the process of organizing and performing recruitment tasks and activities within organisations, in the context of an organisational environment. Moreover, little attention has been given to the impact of technology on the recruitment process as a whole (Parry & Tyson, 2009), or to how the e-recruitment effect on firm performance (Lee, 2011).

In addition, this study examines both internal (e.g. technology quality, service quality, and security assurance) and the external determinants (e.g. empowered manager and member team, content of an implementation plan for e-recruitment, HR and IT collaboration in e-recruitment, job seeker trust in e-recruitment, organizational reputation, decentralization of selection decision, and government objectives) and its effect on firm performance. A number of exploratory and empirical research has been conducted to investigate the factors and the extent of their influence on firm performance (for example, Aryee et al., 2012; Mithas & Rust,. 2015; Foroudi et al., 2016). However, the influences of these factors, on firm performance, have mostly been examined separately and only a few of these studies have integrated some of these factors. The present study attempts to categorize the most relevant factors into internal and external factors. Nonetheless, none of the studies has examined all of the factors together as investigated in this study. In this study, a holistic approach will be adopted to explore the deciding factors and the extent of their influence on firm performance. This research, thus, makes a valuable contribution, as it is the first of its kind to be conducted in the Kingdom of Saudi Arabia context.

Therefore, in an attempt to address the abovementioned shortcomings in the empirical literature, the present research has proposed and tested a conceptual model that discovers the relationships between the determinants of e-recruitment (E-recruitment System Strength, e-recruitment management support strength, and applicant-organisation relationship) and firm performance. It also explores a mediating role of HR capability on the link between e-recruitment determinants and firm performance. Alongside this model, a set of research

questions were developed to address the shortcomings identified in the e-recruitment literature. Since this chapter links the study's findings to the research questions, it would therefore be useful to recall these questions:

- RQ1. What are the determinants of e-recruitment?
- RQ2. How does e-recruitment influence on firm performance?
- RQ4. Does human resources capabilities mediate the relationship between e-recruitment and firm performance?

## **1.5 Summary of Research Methodology**

This study has adopted two assumptions of research philosophy named ontology (objectivism) and epistemology, which is concerned with the development of knowledge. These assumptions lead to the adoption of a positivist philosophy, which presumes that theoretical models can be developed in order to explain cause - and - affect relationships. This philosophy has allowed the application of a deductive approach, which requires the development of hypotheses based on the suitable theoretical framework, which explains the relationship between the e-recruitment and firm performance. Research methods refer to the set of methods and techniques available to the researcher to conduct a research (Kothari, 2004). This can include instruments such as questionnaires and interviews (Bryman, 2012; Hair et al., 2014). A quantitative method is employed to reach the research results and a questionnaire was used to collect data from the Kingdom of Saudi Arabia.

## **1.6. Study Main Results**

The results show that internal determinants (E-recruitment System Strength) significantly increase the  $R^2$  statistic of repurchase e-recruitment by 2.9% ( $B = 0.29$ ,  $p < 0.001$ ), indicating a medium effect size ( $f^2 = 0.12$ ). The effect of external determinants of e-recruitment (e-recruitment management support strength) significantly increase the  $R^2$  of e-recruitment by 4.2% ( $B = 0.42$ ,  $p < 0.001$ ), indicating a big effect size ( $f^2 = 0.56$ ). The results also show that external determinants (applicant-organisation relationship) significantly affect e-recruitment, increased  $R^2$  of e-recruitment by 5.7 percent ( $B = 0.57$ ,  $p < 0.001$ ), indicating a big effect size ( $f^2 = 0.61$ ). The results also indicate that e-recruitment has a positive effect on human resource capability, as  $R^2$  of human resources capability was significantly increased by 6.1 percent ( $B = 0.61$ ,  $p < 0.001$ ), indicating a medium effect size ( $f^2 = 0.19$ ). In addition, e-

recruitment has a positive effect on firm performance ( $B=0.48$ ,  $p < 0.001$ ). Furthermore, human resource capability mediates the relationship between e-recruitment and firm performance partially.

## **1.7 The Study Contributions**

The study's findings reveal some important implications for organizations and academic researchers as well as making a significant contribution to the body of knowledge in a number of different ways.

First, investigations on the link between e-recruitment and organizational performance have extensively been done in the US and the UK (Mutua, et al., 2012) Several authors point out that research needs to be conducted in others contexts (Ericksen & Dyer, 2005; Sills, 2014).

Second, research on e-recruitment and their link to firm's performance in most cases do not address the issue of human resources capability and its effect on firm performance. In recent years, much concern has been shown for the strategic involvement of the Human Resource (HR) and its effect on firm's performance (Analoui, 2000). The debate has led to the creation of a resource-based model of HRM (Boxall, 1996), identifying HR as being responsible for increasing organisational success (Swart & Kinnie, 2012) and a realistic indicator for the improved organisational effectiveness (Jiang & Liu, 2015). The resource-based approach to strategic management considers HR as a unique source of competitive advantages of the firm (Boxall, 1991; Albrecht, et al., 2015). Therfore, the current study examines the influence of human resources capability on firm perfonrnce.

Third, Ngai and Wat (2006) claim that human resource information system (HRIS) also leads employees to quick response and access to the relevant information. Besides, HRIS facilitates the HR department to ensure greater information accuracy, faster information processing, improved HR planning and program development, improved employee communications and lower HR costs (Slavic & Berber, 2013; Troshani et al., 2011). However, the applications of an HRIS do not only have an influence on HR department but also a deep influence on the employees job satisfaction and turnover intention (Maier, et al., 2013; Marler & Fisher, 2013). Though, the administrative benefits (Beadles, et al., 2005) of HRIS have relatively justified, but no study found on the firm's financial aspects of HRIS implementation. Marler and Sandra (2013) reviewed 40 studies related to these aspects from

1999 to 2011 and no empirical evidence found on HRIS applications and financial performance. Authors argued that financial outcomes are a major determinant of firm performance (Dyer & Reeves, 1995) while firm performance is one of the strategic outcomes of HRM (Becker & Huselid, 1998). However, there remains lack of research on the impact of HRIS applications on the firm's performance.

Fourth, our study illustrates the indirect importance of the internal and external determinants of e-recruitment and the direct importance of HRM capabilities for organizational performance an outcome of great interest for managers. Although technology has long been recognized as an important facilitator of recruitment, practitioners have also identified the importance of e-recruitment internal and external determinants. Our study indicates an empowering leadership, member team, trust in e-recruitment, organizational reputation, and government objectives are important determinants of e-recruitment. Thus, organizations should pay more attention to these factors that influence on e-recruitment in order to improve the firm performance. Our study also indicates that HRM capabilities play an important role in improving firm performance. Therefore, managers should pay attention to HRM capabilities. Another practical implication is that considering the interaction effects of different resources, any "improvement" or change in one resource, or any new resource acquisition must be accompanied by a re-alignment of other resources to prevent disruptive effects or dysfunctions that would negatively influence the firm performance.

Finally, most of the empirical studies investigating the e-recruitments' impact on firm performance adopt a narrow approach testing the direct link between the e-recruitment and the firms' performance (Marler & Sandra, 2013). However, due to the nature of the e-recruitment role, such an approach is considered to be limited and could be misleading. Hence, the indirect approach adopted in this research provides a more accurate indication about the effectiveness role of human source capability. It is important to note that in this study formal mediation tests are applied to test these indirect effects.

## **1.8 Research Outlines**

In addressing the aim and objectives of the study, this thesis will be divided into four main parts: the literature review, the research methodology, the research findings, and the discussion of research findings, conclusion, and implications for theory and practice.

**Chapter One:** Introduction to the whole research. This chapter presents for the research background, the main objectives, the research outlines.

**Chapter Two:** Literature Review: This chapter attempts to classify the literature into five main parts as the following: Theories, E-recruitment, and Human resources capability.

**Chapter Three:** The conceptual framework. It presents for the relationship between e-recruitment and human resources capability and firm performance.

**Chapter four:** discusses the research methodology, which is a scientific method of achieving research results and research objectives and answering research questions. It also presents the different approaches of certain research philosophies, research methods and research design and it justifies why this study adopts a specific methodology. This chapter outlines the data collection and the measurement of variables. Finally, it presents different types of samples and it shows the most suitable type for this study,

**Chapter five** presents the findings, including an illustration of the descriptive statistics of the data, the measurement model and the structural model.

**Chapter six** aims to link the results of the current research with those in previous studies in order to see the extent to which both are consistent. It also justifies the research results based on the Resource Based theory in the context of the kingdom of Saudi Arabia. It also covers the conclusion of the study, implications to theory and practice, main contributions of the study, recommendations to online services providers, and limitations and future research areas.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1. Introduction**

With the new challenges of economic globalisation, companies nowadays consider that their investments in intangible human capital are just as important as other tangible, physical capital and assets. Human capital has increasingly shown its importance in promoting the implementation of strategic objectives (Sharma, 2011). These investments are not now considered as a cost; rather, they are sources of extraordinary returns and outcomes (Yan-li, et al., 2011). In today's environment of turbulent challenges, competitive advantages and organisational capabilities, companies are responsible for creating a distinguished performance in order to differentiate their products and services. That has significantly changed the expected role of all types of companies across the world in responding to such challenges and goals (Yan-li, et al., 2011).

Recently, the organisational environment has seen a rapid development of internet technology to create organisational capabilities (Patas et al., 2012). A series of empirical studies confirms that the successful use of electronic services in the business world can not only create market opportunities through changing a firm's model, optimising organisational structures and processes and improving market penetration, but can also significantly enhance organisational capabilities by recruiting the right employees to work in the firm, increasing valuable customer relationships through competitive market prices and improving organisational competitiveness through the innovative use of technologies (Nevo & Wade, 2008).

Information technologies (IT) have been recognized as one of the greatest forces causing change in the firm performance (Law et al., 2013). Many firms have turned to IT as a way to cope with an environment characterized by globalization, competition, high client turnover, and rising guest expectations. IT investments are considerable in the firms, but those investments do not always guarantee suitable returns; therefore, research that clarifies in detail how IT can improve organizational performance is required (Cohen & Olsen, 2015). The next section will visit most prevailing theories in scholarly work that are used in HR. This chapter discusses a review of HRM theories, e-recruitment, and human resource capability.

## **2.2 A Review of HRM Theories**

Theoretical perspectives based in sociology, economics, management, and psychology focus in different aspects of the domain of HRM in context (Wright& McMahan).

### **2.2.1 Resource-Based Theory**

The RBV posits that firms can be viewed as collections of resources, some of which can be considered strategic resources (Penrose, 1959; Wernerfelt, 1984). Strategic resources are valuable, rare and imperfectly imitable and substitutable (Barney, 1991). As they are distributed heterogeneously across firms, they can result in a sustained competitive advantage (Barney, 1991; Peteraf, 1993; Madanoglu & Ozdemir, 2016). Supply chain scholars have acknowledged that internal/cross-functional and external integration with customers and suppliers can be complex and requires unique capabilities that may be difficult or costly to implement (Barney, 2012; Daugherty et al., 2009; Chen et al., 2009). SCI can be seen as an internal strategic resource that could result in a competitive advantage and improved firm performance (Barney, 2012; Madanoglu & Ozdemir, 2016)

Compared with the great attention afforded The Resource-based View of the Firm (RBV) in strategic management literature (e.g. Barney 1991; Barney, et al., 2001; Castanias & Helfat 1991; Conner 1991; Jap 1999; Wright & McMahan 1992; Madanoglu & Ozdemir, 2016), the theory of RBV has seen comparatively less attention in both marketing academy and practice, although this theory can explain the fundamental processes by which resources are transformed into value through managerial guidance (Lo et al., 2012; Pataset al., 2012; Srivastava et al., 2001; Sanches and Machado, 2014). The premise of RBV is that firms differ, even within the same industry, and that these differences come from the firm's resources (Wernerfelt, 1984). The main viewpoint is that "a firm's strategy should depend on its resources—if a firm is good at something; the firm should try to use it" (Wernerfelt, 2005, p.17). According to Barney (1991), since sustained competitive advantage can come from the resources and capabilities of a firm that can be viewed as tangible and intangible assets including a firm's management skills, processes of information and knowledge about information controls, RBV and related disciplines have involved considerable theoretical development and empirical testing in strategic management. In fact, RBV in strategic management literature rose in response to Porter's (1980, 1985) perspective of strategy, which emphasises the analysis of industry structure (Jap 1999). According to McKelvey (1999), the "resource-based view" of strategy has developed the relationship between internal process capabilities and a firm's ability to generate revenues well in excess of marginal costs.

These attempts to understand how internal resources to the firm act as sustainable resources of competitive advantage are reflected in “the resource based-view” (Liu & Liang, 2015), “core competence” (Prahalad & Hamel 1990; Sanches & Machado, 2014), “strategic flexibilities” (Sanchez, 1995, p.23) and ‘dynamic capabilities’ (Helfat & Peteraf, 2014.). The capabilities perspective has evolved within the resource-based view (RBV). This stream of thought focus on endogenous factors – i.e., the interior of the company, its resources, competencies and capabilities – that are treated as internal sources of competitive advantage. This perspective originates from Penrose’s (2009) interpretation of the firm as a bundle of resources which shape its competitive position. This approach explains that heterogeneity between business organizations stems from differing degrees and scope of control over valuable, rare, inimitable and non-substitutable resources (VRIN criteria).

The resource-based view (RBV) of the firm aims to identify the resources and capabilities that enable a firm to attain a level of performance that cannot easily be matched by competitors (e.g., Armstrong & Shimizu, 2007; Sirmon et al., 2009; Sirmon & Hitt , 2009; Constantinos et al., 2016). A few studies have also explored the conditions under which specific resources are likely to generate superior rents and performance (e.g., Hitt et al., 2006; Bondarouk et al., 2015). RBV scholars have stressed the need for further research in this area in order to more systematically explore such boundary conditions for different resources and capabilities (Armstrong & Shimizu, 2007; Sirmon et al., 2009; Kaleka & Morgan, 2017). In particular, a promising research opportunity is to explore contingency factors that are relevant to a particular strategy a firm pursues, as well as the specific activities that support that strategy. As Barney and Arikan observed, ‘resource-based theory has a very simple view about how resources are connected to the strategies the firm pursues’ (2001, p. 174). Interestingly, early RBV theorists emphasized that resources, by themselves, cannot be valuable unless they create distinct strategic options for a firm (Peteraf, 1993), or ‘when they enable firms to conceive of and implement value-creating strategies’ (Lazzarini, 2013. p. 119).

The central proposition of the resource-based research is that firms are heterogeneous in terms of the strategic resources they own and control. It is generally suggested that this heterogeneity is an outcome of resource-market imperfections (Barney, 1991), resource immobility (Barney, 1991), and firms’ inability to alter their accumulated stock of resources over time (Carroll, 1993; Kaleka & Morgan, 2017). In this vein, each firm can be conceptualized as a unique bundle of tangible and intangible resources and capabilities

(Wernerfelt, 1984). Resources, which are the basic unit of analysis for RBV, can be defined as those assets that are tied semi-permanently to the firm (Maijor & Witteloostuijn, 1996; Wernerfelt, 1984; Kaleka & Morgan, 2017). It includes financial, physical, human, commercial, technological, and organizational assets used by firms to develop, manufacture, and deliver products and services to its customers (Barney, 1991). We can classify resources as tangible (financial or physical) or intangible (i.e., employee's knowledge, experiences and skills, firm's reputation, brand name, organizational procedures).

The resource-based theory of the firm blends concepts from organisational economics and strategic management (Barney et al., 2001; Wright & Snell, 1998; Youndt et al., 1996). A fundamental assumption of this view is that organisations can be successful if they gain and maintain a competitive advantage (Barney, 2001b). Competitive advantage is gained by implementing a value-creating strategy that competitors cannot easily copy and sustain (Barney, 2001) and for which there are no ready substitutes (Barney, 2001).

For competitive advantage to be gained, two conditions are needed: first, the resources available to competing firms must be variable among competitors, and second, these resources must be immobile (i.e. not easily obtained). Three types of resources associated with organisations are (a) physical (plant; technology and equipment; geographic location), (b) human (employees' experience and knowledge), and (c) organisational (structure; systems for planning, monitoring, and controlling activities; social relations within the organisation and between the organisation and external constituencies) (Jackson & Schuler, 1995; Kaleka & Morgan, 2017).

HRM greatly influences an organisation's human and organisational resources, and so can be used to gain competitive advantage (Constantinos et al, 2016). Presumably, the extent to which HRM can be used to gain competitive advantage, and the means of doing so, are partly determined by the environments in which organisations operate (Wright & McMahan, 1992). For example, in some industries, technologies can substitute for human resources, whereas in others the human element is fundamental to the business (Wright & Snell, 1998, pp.23-26).

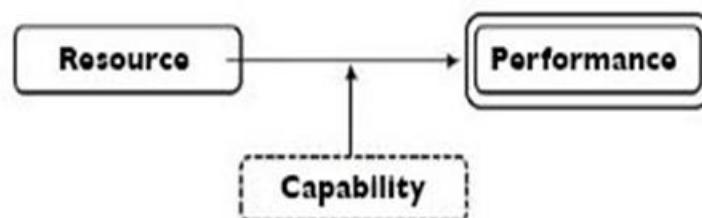
Resource-based theory suggests that firm resources and capabilities influence the growth and performance of the firm (Mahoney & Pandian, 1992; Schilke , 2014; Constantinos et al., 2016). The firm is defined as a set of productive resources and administrative organisation

(Kraaijenbrink & Groen, 2008; Xu et al., 2017). Distinctive resources and capabilities make a firm competitive and robust.

The main question concerning resource-based theory when it was first introduced was what characteristics of resources can generate sustained competitive advantages. Another question is why firms perform differently even in the same industry. There are four indicators of firm resources necessary to achieve sustained competitive advantage, as suggested by Ortiz-de-Mandojana and Bansal (2015).

The emergence of the dynamic capability notion (Teece, et al., 1997) within the resource-based view allows scholars to analyse organizational change alignment with environmental dynamism through a novel theoretical prism. Nevertheless, this concept still remains in statu nascendi, with certain issues undeveloped. Specifically, it is unclear how organizational resources, routines, assets, capabilities and competencies relate conceptually to dynamic capabilities (Kaleka & Morgan, 2017).

Using these basic concepts of firm resources, empirical studies have examined resource-based theory in various contexts. There have been several research studies on technology transfer related to resource-based theory, but there are not enough empirical studies on adjusting resources, as well as capabilities, for measuring firm performance, since technological contracts are usually confidential. Thus, technology transfer information is hard to obtain from the market (Barney, et al., 2001; Wright & Snell, 1998; Youndt et al., 1996; Law et al., 2013).



*Figure 2.1: Concept of this research (Source: (Youndt et al., 1996)*

Barney's (1991) Resource-Based View (RBV) Theory claims that a company must have valuable, rare, inimitable and non-substitutable resources to have a sustainable competitive advantage, and that these resources include everything internal to the firm. Barney (1986) listed all of the assets, capabilities, organizational processes, firm attributes, information, knowledge, and so on, as resources. The application of this theory to HRM illustrates the role that people play in building a company's competitive advantage. To explain how this theory can be applied to HRM, Wright and McMahan (1992) referred to the following four features that people, as resources, must have for the company to be competitive. First, they must give value to the company's production processes, meaning, the level of individual performance must be significant. Second, the skills that the company looks for must be rare. According to them, all human resources should meet these two criteria, since they are evenly distributed. Third, the combined human capital investments of a company's employees must not be easily imitated. Some argue that other types of resources in a company, such as technology and natural resources, are available to anyone and easy to copy nowadays. On the other hand, human resources – particularly HR systems – represent a complex social system (Ulrich & Lake, 1990) and are regarded as invisible assets. Finally, a company's human resources must not be substituted or replaced by technological alternatives; however, the high levels of automation in many industries and the continuing shift towards a service economy have made substitution less likely. Overall, the Resource-Based Theory provides a useful basis for understanding the value that HRM adds to the performance of the organization. But beyond RBV, it is important to discuss theories that involve HRM practices to truly understand the influences that HRM have on organizations.

### **2.2.2 General systems theory**

In general systems theory, the unit of analysis is understood as a complex of interdependent parts(Von Bertalanffy, 1950). An open (vs. closed) system is dependent on the environment for inputs, which are transformed during throughput to produce outputs that are exchanged in the environment. The open systems view of HRM has been developed further by Wright and Snell (1998) and Youndt et al (1996), who used it to describe a competence management model of organisations. Skills and abilities are treated as inputs from the environment; employee behaviours are treated as throughput; and employee satisfaction and performance are treated as outputs. In this model, the HRM subsystem functions to acquire, utilise, retain,

and displace competencies (Wright & Snell, 1998; Moeller & Valentinov, 2012; Meijerink, et al., 2015).

### **2.2.3 Role behaviour perspective**

Since its introduction, role theory has frequently been used to further our understanding of a variety of workplace phenomena—including supervisor– subordinate relationships. Using role theory as a conceptual foundation, see Graen and Scandura (1987) described the development of LMX relationships as a role-making process. That process unfolds across a series of role episodes within a given dyad, whereby the leader communicates expectations to a given follower and, based on the follower’s responses, their relationship evolves either into a higher-quality socio-emotional relationship characterized by mutual trust, respect, and obligation, or a lower-quality transactional relationship in which those feelings are not present (Graen & Uhl-Bien, 1995). Following the development of the relationship, roles become relatively routinized and stable (Graen & Scandura, 1987). Although this description implies that the role making process unfolds smoothly and culminates in shared perceptions of the quality of the supervisor– subordinate relationship, several stumbling blocks can create disagreement in those perceptions.

Focussed on roles as the interdependent components that make up an organisation system, instead of using specific behaviours and job performances as the fundamental components, this perspective shifts the focus from individuals to social systems characterised by multiple roles, multiple role senders, and multiple role evaluators (Sirgy, 1986). Role theory recognises that “the behavioural expectations of all role partners can influence the behaviour of organisational members” (Borman & Motowidlo, 1997, pp.45-47; Glaister, et al., 2017).

### **2.2.4 Institutional theory**

The concepts behind institutional theory originate with Meyer and Rowan (1977). However, the seminal authors who shaped and refined the notion of mimesis in organisations, or in other words, the tendencies of organisations to mimic each other, were DiMaggio and Powell (1983) and their three key concepts are most frequently referenced by authors applying this theory. Meyer and Rowan (1977: 340) explain institutionalised organisations by stating that ‘organisations are driven to incorporate the practices and procedures defined by prevailing rationalized concepts of organisational work and institutionalized society’ and ‘Organisations that do so influence their legitimacy and their survival prospects, independent of the immediate efficacy of the acquired practices and procedures’. The result is isomorphism,

defined as the ‘constraining process that forces one unit of a population to resemble other units that face the same environmental pressures’ (DiMaggio & Powell 1983:149; Glaister, et al., 2017).

A role theory perspective assumes individuals respond to normative pressures as they seek approval for their performance in socially defined roles. Similarly, institutional theory views organisations as social entities that seek approval for their performances in socially constructed environments. Organisations conform to gain legitimacy and acceptance, which facilitate survival (Scaraboto & Fischer, 2013). Because multiple constituencies control needed resources, legitimacy and acceptance are sought from many stakeholders(Tolbert & Zucker, 1983; Heikkila, 2013).

### **2.2.5 Human capital theory**

Human capital theory is widely used to explain objective career success in Western settings (Becker, 1962; Forstenlechner, et al., 2014; Sullivan & Baruch, 2009). Objective career success reflects observable achievements of an individual, such as pay and promotion (Judge et al., 1995), and has typically been related to human capital and socio-demographic antecedents (Ng, et al., 2005; Hayek, et al., 2016).

The main prediction of human capital theory is that increases in human capital translate into greater pay through increased job performance. However, only in ideal cases do performance evaluations offer an “objective, rational, and systematic way for organizations to manage workforce performance” (Chiang & Birtch, 2010, p. 3) because managers often experience institutional pressures that introduce bias into the relationship between human capital and performance evaluations, as well influencing the combined impact of human capital and performance on objective career success (Parboteeah & Cullen, 2003; Hayek, et al., 2016).

In economics literature, human capital refers to the productive capabilities of people (Becker, Spencer & Swartwood, 1968). Skills, experience and knowledge have economic value to organisations because they enable them to be productive and adaptable; thus, people constitute the organisation's human capital. Like other assets, human capital has value in the marketplace, but unlike other assets, the potential value of human capital can be fully realised only with the cooperation of the person (Becker et al., 1968, pp.34-45; Hayek, et al., 2016).

“Organisations can use HRM in a variety of ways to increase their human capital. For example, they can “buy” human capital in the market (e.g. by offering desirable

compensation packages) or "make" it internally In human capital theory, contextual factors"(Snell & Dean, 1992, pp.12-22; Shaw, et al., 2013, pp. 178).

### **2.2.6 A framework for analysing training and firm performance issues**

Klein and Kozlowski (2000) suggest an approach to organisation improvement and development based on enhancing the knowledge, skills and attitudes or abilities of the workforce. This paradigm may be accomplished through training activities. From this perspective, training is effective to the extent that it directly contributes to the strategy, objectives, or outcomes central to organisational effectiveness. The theoretical frameworks are not, however, adequately addressed in current models. Thus, a theoretical model is proposed in the hope that it will assist in understanding the relationship between training and firm performance.

To contribute to the theoretical literature, a theoretical framework was developed and proposed to fulfil the requirement for analysing training and firm performance issues (Abdelhafez & Al-Mashi, 2013; Alshehri et al., 2012; Barney, Wright & Ketchen, 2001; Barney, 2001b; Klein & Kozlowski, 2000; Saridakis, et al., 2016).



Figure 2.2. Research Comprehensive Theoretical Framework

Source: (Kettinger and Grover, 1995).

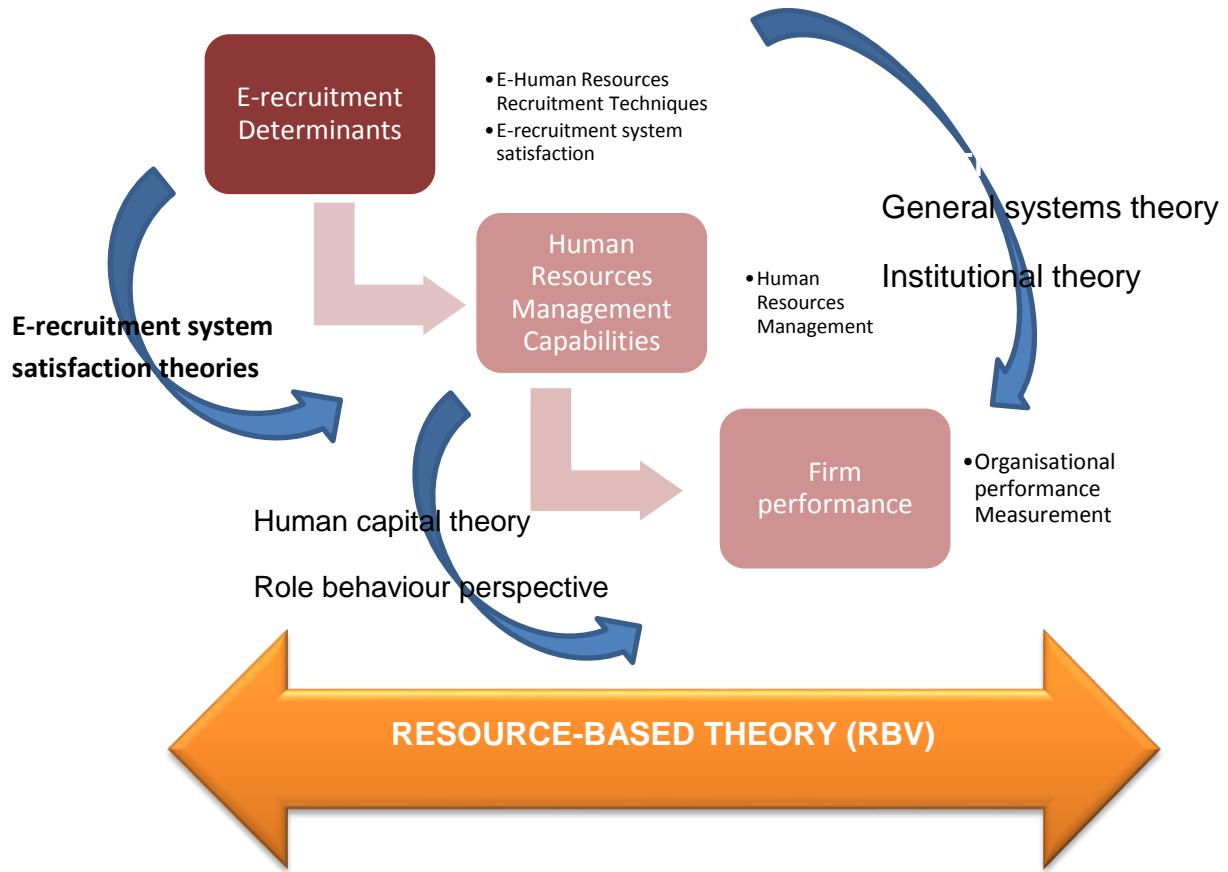


Figure 2.3: A framework for analysing e-human resources determinants and firm performance

Source: Alshehri *et al.*, 2012; Barney, Wright & Ketchen, 2001; Youndt *et al.*, 1996

In the long run, striving to enhance HR outcomes will lead to favourable consequences for firm performance. With respect to the performance being used in this model a distinction can be made between financial and non-financial performance. Financial performance in this context is linked to indicators like return on investment (ROI), return on assets (ROA), return on equity (ROE), return on sales (ROS), Tobin's q, sales, market share and productivity. Non-financial performance includes labour turnover, absence of employees, conflict, quality of product, service and innovation (Abdelhafez & Al-Mashi, 2013; Alshehri et al., 2012; Barney, et al., 2001; Klein & Kozlowski, 2000; Abdelhafez & Al-Mashi, 2013; Alshehri et al., 2012; Saridakis, et al., 2016).

### **2.2.7 E-recruitment system satisfaction theories (TAM and EUC)**

Drawing upon the theoretical basis of TRA, Davis (1989) introduced the Technology Acceptance Model (TAM) in order to explain the IT acceptance behaviour of individual end-users. In essence, TAM posits that two external beliefs, namely ‘perceived usefulness’ and perceived ease of use are of primary relevance for predicting users’ acceptance of new technology. Perceived usefulness refers to “the degree to which an individual perceive that the use of an IT would enhance his/her performance” and perceived ease of use is defined as the extent to which an individual perceive using an IT to be free of effort” (Davis et al., 1989, p. 985). Similar to TRA, the TAM assumes that intentions determine actual IT usage behaviour. Intentions, on the other hand is jointly predicted by attitudes towards IT and its perceived usefulness (Ayeh, 2015).

The logic behind the direct effect of perceived usefulness on intentions is that individuals form intentions to use an IT if they believe that it will improve their performance, regardless of negative or positive feelings (i.e., attitudes) towards the IT (Davis, 1989; Davis et al., 1989). TAM also posits that attitude is jointly predicted by perceived usefulness and perceived ease of use. Finally, perceived ease of use is also expected to exhibit a direct effect on perceived usefulness, as the easier a system is to use, the more useful it is perceived to be (Vishwanath & Goldhaber, 2003; Ayeh, 2015). Unlike TRA, the TAM does not include the effect of subjective norms as a predictor of intentions mainly due to its uncertain theoretical and psychometric status (Davis et al., 1989, p. 986). Consequently, several researchers (e.g., DeLone & McLean, 1992; Karahanna, et al., 2006; Petter, et al., 2013; Wu & Chen, 2017) argue that the original TAM can only be applied to situations in which the IT usage behaviour

is voluntary in nature. Another limitation with the original TAM is that it focuses on only two belief constructs (i.e., ease of use and usefulness) as predictors of IT usage behaviour so that it could be generalisable to a wide variety of technologies and across different settings. Davis et al. (1989) recognised the significance of external variables by including a corresponding component to the original TAM and encouraged researchers to extend the model to include additional predictors that may be significant in predicting usage behaviour. This recommendation was put into practice by Davis himself in his updated TAM2 (Venkatesh & Davis, 2000; Xu et al., 2017). TAM2 extends the original TAM by taking into account the effect of social influences (i.e., subjective norms, and image) and several cognitive instrumental processes (i.e., job relevance, output quality, and result demonstrability) on perceived usefulness. The overarching argument in TAM2 is that cognitive assessment of the correspondence between what IT is capable of doing and what the user needs to do in his/her job forms perceptions regarding perceived usefulness (Venkatesh & Davis, 2000; Ayeh, 2015).

To distinguish between voluntary and mandatory usage of IT, Venkatesh and Davis (2000) included ‘voluntariness’ as a moderating factor in the relationship between subjective norms and intentions. Finally, ‘experience’ was added to the model as a moderator in the relationship between subjective norms and intentions/usefulness in order to explain how experience with IT over time subsides the importance of subjective norms (see Venkatesh & Davis, 2000, p. 189 for further reading). Later in 2008, Venkatesh and Bala introduced another extension to TAM – TAM3 – in order to develop a model of the determinants of perceived ease of use. Building upon the ‘anchoring and adjustment’ theory of human decision making (Tversky & Kahneman, 1974), the authors proposed a set of anchoring factors (i.e., computer self-efficacy, computer anxiety, computer playfulness, and perceptions of external control) that drive initial judgments of perceived ease of use, as well as two system characteristics (i.e., perceived enjoyment, and objective usability) that adjust initial judgements upon using the system. Similar to TAM2, both experience and voluntariness were included in TAM3 as moderators, with new moderating roles defined for experience in the relationships between anchoring/adjusting factors and perceived ease of use (Ayeh, 2015).

Although both TAM2 and TAM3 provide a fair understanding of external determinants of perceived ease of use and perceived usefulness, both fail to consider the importance of ‘perceived behavioural control’ and ‘subjective norms’ and their corresponding antecedents in explaining IT adoption behaviour (Dillon, 2001). In other words, TAM and its extensions

focus on decomposing the determinants of usefulness and ease of use rather than subjective norms/behavioural control, which are not incorporated in the original TAM (Chau & Hu, 2001; Xu et al., 2017). To address these limitations, Taylor and Todd (1995) proposed the Decomposed Theory of Planned Behaviour (DTPB) and compared it with both TPB and TAM on the bases of predictive and explanatory power.

Technology acceptance has been considered in previous researches. It represents the individual's voluntary acceptance of the final user or his/her intended use of technology (Alshehri et al., 2012). Technology acceptance models have been used to promote technology usage and to lift the curtain on some factors of the acceptance and use of technologies in many fields (Kripantont, 2006; Ayeh, 2015; Ayeh, et al., 2013).

Schuh et al. (2000) listed a number of technology theoretical models which have been promoted to study and investigate the effect of various hidden psychological factors on the technological acceptance and use of technologies by final users (Alshehri et al., 2012; Chen, Chen, et al., 2009). In order to highlight the satisfaction with electronic services in the field of e-recruitment, this study attempts to use the Technology Acceptance Model (TAM -Davis, 1989)which has been applied for so many researches in the same field, and the measurement of End-User Computing Satisfaction (EUCS) by Doll, Xia and Torkzadeh (1994). Those two main models have a wide range of implementations and have been accepted for many patterns et al., 2001; Barney, 2001; Navimipour & Zareie, 2015).

The TAM model has received a great deal of empirical and theoretical acceptance in previous research; however, there are some criticisms related to this model (Teece, 2009). The TAM model often depends on self-reporting by the end user of the electronic system. Moreover, much empirical research has used the model for students as the main sample size of their empirical results, instead of carrying out the search in a business context (Abdelhafez & Al-Mashi, 2013; Handlogten, 2009; Alsultanny & Alotaibi, 2015).

In measuring End-User Computing Satisfaction (EUCS), Doll and Torkzadeh (1988) use an instrument, which merges ease of use and information product factors to measure applicant satisfaction (Doll & Torkzadeh, 1988). Building on the instrument used, some items were suggested to measure applicant satisfaction; they are “content, accuracy, format, ease of use and timeliness” (Doll & Torkzadeh, 1988; Ayeh, et al., 2013). When comparing those two models, we can see that the outcome constructs of the TAM and the EUCS seem to be

characterised more by an affective notion, like applicant satisfaction, and information technology acceptance of the human resources management and electronic services usage (Ayeh, et al., 2013).

Using both the TAM and the EUCS is very important in illustrating the external factors of using electronic recruitment. However, in the present research, the researcher attempts to draw a generic theoretical framework by using the resource-based view approach in order to explain the comprehensive viewpoint which the present study uses to fill the gap in the previous researches, which focuses on studying the direct and indirect relationship of electronic recruitment and firm performance.

### **2.3 Electronic Recruitment (e-recruitment)**

Handlogten (2009) stated that the first introduction of the Internet as a recruiting tool was in the mid-1990s. The terms: online recruitment, e-recruiting, cyber recruiting, or Internet recruiting present the formal sourcing of job information online (Galanaki, 2002). The use of the Internet has dramatically changed the face of Human Resource (HR) recruitment and the ways organizations think about the recruiting (Chapman , Uggerslev , Carroll , & Piasentin, 2005). E-recruitment adopted in many organizations, both large and small ones. It brings the benefits to the organizations; e-recruitment gives more flexibility to the recruitment management in making contact with prospective applicants through online channels like e-mails and Short Message Services (SMS) (Kapse, et al., 2012; Roth et al., 2013).

Electronic-Human Resource Management (E-HRM) influences the efficiency and the effectiveness of the HR system by minimizes cycle times, increasing data precision and reducing HR crew. E-HRM enables the HR system to create value for the organization in new ways one of these ways is e-recruitment (Lengnick-Hall and Moritz, 2003; Narmadha & Nagi, 2017). For e-recruitment, organizations is building their own web sites ever better because of the higher costs of advertising and the ease and speed of finding more qualified applicants (Alsultanny & Alotaibi, 2015).

The recruitment of high-quality employees remains a fundamental goal for organizations. Now more than ever, researchers and practitioners recognize the need to understand the manner in which prospective applicants are attracted to organizations and jobs (Lievens, et al., 2002). Meanwhile, advances in technology have transformed the way recruitment can be handled, and the past decade has seen a marked trend toward Internet-based recruitment,

especially among large, multinational organizations (Anderson, 2003). Currently, however, little is known about applicants' reactions to e-recruitment procedures because research has only begun to explore this issue (Anderson, 2003; Cober, et al., 2004; Rosoiu & Popescu, 2016).

One of the most important human resource methods, which face some challenging factors from their environment, is the electronic recruitment system. This new technique of recruitment processes is about providing a high quality of employment services, as well as job agent companies looking for qualified candidates to fill their vacancies. But previous research has revealed that internet jobseekers have serious concerns about the safety and security of their information, or what is also called e-privacy concerns (Ettinger, Wilderom & Ruel, 2009). Moreover, candidates who use the Internet to apply for jobs are hesitant to disclose their personal details. To guarantee transparency, trust and security, some researchers recommend a strong need for a management system that all human resource management departments can access efficiently and independently (Lee, 2005; Mento, et al., 2002; Parry & Olivas-Luján, 2011; Rosoiu & Popescu, 2016). Regarding the quality of the electronic recruitment services a company uses, it is very important to use technology relevant to the task so as to enhance the company's performance (Parry & Olivas-Luján, 2011).

Such a technology must be reliable for both applicants and the organisational culture, which differs from one community to another. Those types of e-recruitment would be more effective for the human resources of the firm and would impact successfully on overall performance (Mento, et al., 2002; Omolo, 2012).

Based on that, the present study attempts to investigate all of the above determinants, which can be classified into two groups, internal and external. This study is designed to shed light on the main determinants of electronic recruitment used by firms, and the direct and indirect impacts on the performance of firms, through new theoretical contributions to the empirical research on e-recruitment.

Reading the publications of Rynes (1991), Breaugh (1992) and Barber (1998) it become obvious that recruitment is critical to organizational success, and that employee recruitment has become a highly discussed topic in recent years (Breaugh, 2008; Roth, 2013). Previous research has shown that recruitment decisions have a significant impact on different factors of the recruitment outcomes, like the diversity of applicants (Breaugh, 2004; Rosoiu &

Popescu, 2016). According to Breaug & Starke (2000), recruitment is a set of activities, which organizations accomplish in order to find the right people for their vacancies, the primary mechanism to attract potential employees. Recruitment includes various activities and is a process, which is characterized by different steps. Starting with identifying the recruitment objectives, developing a strategy and recruitment activities like job advertisements, job interviews and so forth (Braugh, 2008). This process is a challenge for any HR department because they have to establish recruitment objectives first. But what is effective recruitment? According to Fletcher (2011) “the ability to effectively recruit and select good quality people stems from an organizational effort to hire the best people.” This research concentrates on electronic recruitment (e-recruitment) because Social Networking Sites are a part of e-recruitment. There are different characteristics, which are relevant for an effective recruitment process. The characteristics of an (e-) recruitment process are examined in the following paragraph. Pin et al (2001), Eisele (2006), Braugh et al (2008), Holm (2010) and Jetter (2008) and Roth (2013) have discerned the most important characteristics of an effective (e-) recruitment process. These characteristics can be adapted to recruitment by Social Networking Sites, because there is a lack of literature about criteria for an effective recruitment process by Social Networking Sites. Social Networking Sites are a relatively new topic and therefore, the findings of the literature on e-recruitment are the basis for the assumptions in this study. The following table gives a review of the recruitment characteristics from the selected literature.

### **2.3.1 Definition and reasons for using e-recruitment in various industrial fields**

Recruitment of employees is a core phase in the Human Resource Management (HRM) process, it plays a major role in enhancing the organization's success, and therefore the human resource departments are facing pressure to deal with the technological changes (Alsultanny & Alotaibi, 2015).

E-recruitment is increasingly becoming one of the most important human resource methods for providing high-quality employment services, as well as job agent companies looking for qualified candidates to fill their open vacancies. The topic has generated a lot of academic terminology. One can see today that the topic is known variously as electronic recruitment, online recruitment, cyber recruitment (the term used by the US Federal Bureau of Investigation) or webpage based recruitment; all those terms have been collected from organisations which use this tool in their recruitment processes. However, all of those various

terminologies describe the use of the internet to recruit and select online candidates from the job market to join and work in organisations (Patas, et al., 2012; Pyper et al., 2012). Therefore, electronic recruitment has various definitions, based on different ways of using the recruitment process through the internet(Hodgson et al., 2011; Simón & Esteves, 2016).

The definition that I will use in the present research is the electronic tools that have been designed for recruiting candidates from the domestic and global job market in order to put the right candidates and applicants in the vacancies that a company is recruiting for, and to guarantee always selecting the best candidates to work with the organisation. In this definition the researcher will use the word e-recruitment to represent all types of Internet and website applications. In other words, the researcher will use the term ‘e-recruitment’ in this research to represent all tools that an organisation uses to recruit applicants online. Defining e-recruitment terminology, it can be seen that the e-recruitment function can be considered as human resources being taken to another category in matching applicants and employers (Mento, et al., 2002). By using e-recruitment processes, a firm can always provide applicants with greater information about its background, culture, the job and any future opportunities and career development (Mento, et al., 2002; Pin, et al., 2001; Rosoiu & Popescu, 2016).

Some research studies have underlined the most important reasons for using e-recruitment processes in various industries (see for example Chapman and Webster (2003), Hu, Su and Chen (2007), Lee(2005), Mento, Jones and Dirndorfer (2002), and Parry and Tyson (2008) , Hodgson et al (2011), Simón and Esteves (2016). These include:

1. E-recruitment represents a low-cost way of operating the recruitment process and selecting the right applicants for firms (Chapman & Webster, 2003).
2. E-recruitment is easy to use for both candidates and a firm’s employees (Lee, 2005).
3. The human resources department can broaden the pool of candidates (Mento, et al., 2002; Rosoiu & Popescu, 2016).
4. By using e-recruitment methods, the company can increase the speed of recruiting and selecting people (Parry & Tyson, 2008).
5. Using e-recruitment methods can enhance the success of the process in finding candidates and always guarantee the right applicants to work with the firm (Parry & Tyson, 2008).

While e-recruitment seemingly paves the way to become future recruitment method, and is highly likely to become jobseekers platform for job search, it is logically to review the specific jobseekers perceptions and behaviours on this technology usage. As Peter (2001) pointed out that generally, there are two categories of jobseekers: active and passive. Passive jobseekers are those employed jobseekers that already have a good position, but will apply if they see another job of interest, whereas active candidates may include the dissatisfied, less employable jobseekers and passive candidates are of higher quality than active candidates. Despite the fact that the reasons to use e-recruitment might sound profitable, and the use of e-recruitment is growing, several studies show that a majority of the organisations achieve only moderate results (Chapman & Webster, 2003; Parry & Tyson, 2008; Narmadha & Nagi, 2017). Parry and Tyson (2008) studied the use and success of online recruitment methods in the UK. From their research, it appeared that only under a quarter of the respondents found e-recruitment successful. Chapman and Webster (2003) performed surveys and interviews as well, and investigated, among other things, the overall success in technology implementation like e-recruitment. First, they performed in depth interviews with senior HR personnel, after which they conducted a web-based survey administered to HR managers. In total, 2,250 respondents (representing a response rate of 75%) completed the survey. The results show that most respondents (about 40 %) indicated that they had been moderately or partially successful, only 25% indicated strong success, and nearly a third reporting limited success in using e-recruitment. In these mentioned studies, success is vaguely and insufficiently defined. When defined, success is measured based on a single item, and is defined as how interviewees rank their organisation's efforts to acquire and implement technologies in the application, screening, and selection process in their organisation (Chapman & Webster, 2003). Interviewees could answer this question with responses ranging from 'extremely unsuccessful' to 'extremely successful', based on seven options. In another study, success is not specified, based on the assumption that HR is characterised by a context-specific nature, which causes definitions of success to be different in different circumstances (Parry & Tyson, 2008). The findings presented above show that e-recruitment success is not realised in most cases. One of the factors in establishing e-recruitment success appeared to be the implementation of the system (Chapman & Webster, 2003; Galanaki, 2002; Singh & Finn, 2003; Narmadha & Nagi, 2017). Galanaki (2002) concludes in her research that the effectiveness of the system depends mostly on the implementation of the system, rather than on the recruitment source itself. Adjacent to this statement, implementation success depends on thorough planning and on the use of established HR practices. Parry and Tyson (2008)

state in their research that organisations might find success with online recruitment if they adopt an appropriate strategy for their use and implementation. Implementation can thus be considered important in e-recruitment success. And while e-recruitment is one of the most discussed topics in the field of e-HRM (Chapman & Webster, 2003; Lee, 2005), e-recruitment implementation receives less attention within these discussions. Although it is acknowledged that e-recruitment implementation is important, results from research about e-recruitment implementation and its content are sparse. Bartram stated back in 2000 that the topic of study [e-recruitment] was relatively new. Eight years later, Parry and Tyson stated that since Bartram's article, still little has changed and little is known. Based on own literature review, this can be confirmed as well for e-recruitment implementation. In addition, they argue that the majority of academic interest in e-recruitment considers the applicants' perspective, rather than the employer's (Allen et al, 2007; Maurer & Liu, 2007; Lee, 2005; Parry & Tyson, 2008; Narmadha & Nagi, 2017).

### **2.3.2 Recruitment and Selection Practices**

The recruitment and selection process determines the decision as to which candidates get employment offers (Otieno, 2013). The aim of this practice is to improve the fit between employee and the organization, teams, and work requirements and thus to create a better work environment (Tzafrir, 2012). Sophisticated recruitment and selection system can ensure a better fit between the individual's abilities and the organization's requirement (Otieno, 2013). Mulei and Karanja (2011) concluded that employment stability could be achieved through a selection procedure based on ability. Katou and Budhwar (2007) in a study on the Greek manufacturing firms found that recruitment and selection was positively related to all organizational performance variables, such as influenceiveness, efficiency, innovation and quality.

Recruitment is the process of searching candidates for employment and stimulating them to apply for jobs in an organization (Chhabra, 2005; Rosoiu & Popescu, 2016). Recruitment and selection process are concerned with identifying, attracting, and choosing suitable people to meet an organization's human resource requirement. Recruitment and selection are essentially concerned with finding, assessing, and engaging new employees or promoting existing ones. The focus is on matching the capabilities and interests of prospective candidates with the demands and rewards of a given job. Recruitment and selection decisions

are among the most important of all decisions that managers have to make because they are a pre-requisite to the development of an influenceive workforce.

Recruitment and selection are vital functions of human resource management for any type of business organization. These are terms that refer to the process of attracting and choosing candidates for employment. The quality of the human resource the firm has heavily depends on the influenciveness of these two functions (Gamage, 2014). Recruiting and selecting the wrong candidates who are not capable come with a huge negative cost which businesses cannot afford. Thus, the overall aim of recruitment and selection within the organization is to obtain the number and quality of employees that is required to satisfy the strategic objectives of the organization at minimal cost (Ofori & Aryeetey, 2011).

Recruitment and selection have an important role to play in ensuring worker performance and positive job satisfaction outcomes. It is often claimed that selection of workers occurs, not just to replace departing employees or add to a workforce but, rather, it aims to put in place workers who can perform at a high level and demonstrate commitment, thereby leading to high level of job satisfaction (Ballantyne, 2014). Recruitment and selection play a pivotally important role in shaping an organization's influenciveness and performance. If recruiting and selecting staff in an organization acquire workers who already possess relevant knowledge, skills and aptitudes and are also able to make an accurate prediction regarding their future abilities, they will have, in an influenceive manner, avoided undesirable costs, for example those associated with high staff turnover, poor performance and dissatisfied customers, and engendered a mutually beneficial employment relationship characterized, wherever possible, by high commitment on both sides.

Pilbeam and Corbridge (2006) provide a useful overview of potential positive and negative aspects, noting that the recruitment and selection of employees is fundamental to job satisfaction within an organization, and there are compelling reasons for getting it right. Inappropriate selection decisions reduce organizational influenciveness, invalidate reward and development strategies, are frequently unfair on the individual recruit and can be distressing for managers who have to deal with unsuitable employees.

Recruiting and selection is very important for the survival of any organization, but that is not the end. New recruits should be developed and appraised from time to time in order keep abreast with new trends and challenges. When employees are developed, it helps increase their performance and sustain the growth of organization.

Recruitment is central to any management process and its failure can increase difficulties for any organization, including adverse influence on its profitability and inappropriate levels of staffing or skills (Soliman, 2000). Gupta (2013) observes that selection can be conceptualized in either choosing “fit” candidates or rejecting the candidates, or a combination of both. The selection process rightly assumes that there are more candidates than the number of job openings available (Gupta, 2013). The basic idea in the selection process is to solicit maximum possible information about the candidates to ascertain their suitability for employment, given the fact that there are factors which affect the seeking of such information (Graham, 1996).

Simmons (2005) in his paper presented in Vancouver asserts that companies can only succeed in the long-term if they recruit and motivate people who are able to respond to and shape the challenges of the future. These are the individuals with the capacity to create competitive advantage from the opportunities presented by changing markets, with the desire to learn from customers, consumers, suppliers and colleagues, and who possess the ability to build and influence long-lasting and influence partnerships.

The recruitment of new employees helps to demonstrate a company's aspirations, highlighting the skills and attitudes to which it attaches the highest priority, hence increasing job satisfaction. The choice also provides a major opportunity to communicate the values and successes of the organization to explain why the company offers the most attractive place for a person to develop their career.

Recruitment is the process of attracting, screening, and selecting qualified people for a job. According to Montana and Charnov (2000), recruitment includes sourcing candidates by advertising or other methods, screening potential candidates using tests and interviews, selecting candidates based on the results of the tests or interviews, and on-boarding to ensure that the candidates are able to fulfil their new roles influenceively. Recruitment forms a major part of an organization's overall resourcing strategies, which identifies and secures people needed for an organization to survive and succeed in the short- to medium-term (Gupta, 2013).

### **2.3.3 The E-Recruitment sources**

Before the recent introduction of the Web 2.0. technology, the world was getting to know the first-generation Web (Web 1.0), which enabled them to advertise job offers easily and cheaply, whilst appealing to a larger public and making better application management possible. Girard and Fallery (2010) have distinguished three main aspects of Web 1.0.:

**1. Career Websites** - Girard and Fallery (2010) argue that these websites have several objectives: improving the visitors knowledge of a company, promoting an attractive image of an employer and of course generating applications. It has been demonstrated that aesthetics, content and function have an impact on applicants' decision whether or not to maintain their application. This provides an advantage for those able to adapt to the new environment quickly and effectively, but a disadvantage for those unable to do so as it will potentially result in an insufficient quantity of applicants applied to the organisation i.e. in an ineffective and financially indefensible recruitment process.

**2. Job Boards** - these are the platforms which give companies the possibility of communicating their job offers to a large public, at little cost, and with access to a large number of CV databases (Girard & Fallery, 2010; Brenc, 2014). Job boards can be generalist, such as monster.com, or specialised, either by region (example: regionjob.com), or by sector, such as lesjeudis.com in information technology. Specialised job boards provide more targeted information, the research systems are more adapted, and the CVs are in general more qualified (Girard & Fallery, 2010).

**3. Recruitment systems** - Parry and Tyson (2008) have stated in their case studies that the use of both career websites and recruitment systems has several benefits, such as cost reduction, efficiency gains, improved service to clients and improved strategic orientation.

The development of these different tools gave companies the possibility to access to important data bases of competencies. E-Recruitment 1.0 applications allowed them to communicate on a large scale. It made it possible to target and manage the future core competencies of the company to obtain a competitive advantage (Girard & Fallery, 2010).

Lee (2007), however, provided a more broader description of the categorisation of Web 1.0 sources, which he divided into six major categories:

**1. General-purpose boards,**

**2. Niche job boards,**

**3. E-Recruiting application service providers,**

**4. Hybrid recruiting service providers,**

**5. E-Recruiting consortiums, and**

**6. Corporate career websites.**

Lee (2007) summarizes the recruiters' perspectives on these six categories.

1. According to Lee (2007), Internet job boards have two formats. The first is generalpurpose job boards that are a “comprehensive on-line recruiting solution” (Lee, 2007). Job seekers can look for job openings on general-purpose job board based on their specifications (Lee, 2007). General-purpose job boards benefit recruiters who want to reach a large number of job seekers in a format that provides brand recognition for companies (Lee, 2007). Reaching a large number of applicants on a general-purpose job board has the drawback of increasing the volume of applicants who are not qualified for the positions (Lee, 2007; Brenc, 2014).
2. The second job board format is niche job boards. Niche job boards are designed to reach passive job seekers by targeting a highly specialized profession, industry, education level, or location (Lee, 2007). Lee (2007) believes applicant quality is increased on niche boards because they are more specialized than general-purpose job boards. When considering the use of niche job boards, companies should consider the loss of opportunity to stamp the company brand on their job openings (Lee, 2007).
3. E-recruiting application service providers provide “specialised services in recruitment software, recruitment process management, education and training, and management services” (Lee, 2007). E-recruitment application service providers appeal to small to medium sized companies because they often have limited information technology resources (Lee, 2007). E- recruitment application service providers allow a company to quickly launch a career Web site at a low cost (Lee, 2007).
4. The forth e-recruiting source as quoted from Lee (2007) is hybrid recruiting service providers which are traditional recruiters who have expanded their services into erecruitment (Lee, 2007). The advantage of hybrid recruiting service providers is the expertise the service provider has acquired using traditional recruitment methods that can be applied to on-line methods (Lee, 2007).

5. E-recruitment consortiums are a low-cost option for e-recruitment and an alternative to job boards (Rosoiu & Popescu, 2016). Lee (2007) reports DirectEmployers.com was the first e-recruiting consortium formed. DirectEmployers.com drives job seekers to corporate Web sites through use of a search engine (Lee, 2007). Lee (2007) believes the biggest disadvantage of these consortiums is the potential for conflict between its members.

6. A corporate career Web site, according to Lee (2007), is the “natural extension of e-business applications.” Ninety-four percent of Global 500 companies are using corporate Web sites for recruitment (Maurer & Liu, 2007). The most prevalent users of corporate career Web sites are Fortune 500 companies, who have already developed Web sites that generate significant traffic (Lee, 2007). Lee (2007) acknowledged the disadvantage of high startup costs of a corporate career Web site because it requires strong Information Technology support. Lee (2007) believes the high initial cost will be offset by the marginal cost (when compared to job boards) of posting additional positions. Corporate career Web sites allow recruiters the flexibility to brand the Web site with specific company information, enabling applicants to make informed decisions about organisations (Lee, 2007; Rosoiu & Popescu, 2016).

Girard and Fallery (2010) have categorised the most representative Web 2.0 tools in the recruitment framework. These descriptions demonstrate the newest trends in the recruitment practice. The following are the Web 2.0 tools, based on the research by Girard and Fallery (2010).

Blogs: Blogs are personal editorial spaces that allow individuals to publish and distribute content easily. A great number of the blogs that can be seen are created by applicants and recruiters. They use these spaces to broadcast their job offers and create their own “job blog”. For instance, Microsoft is developing blogs, such as Microsoftjobsblog.com, for recruiting purpose. Several researchers are studying employee and corporate blogs. New forms of blogs are emerging, called « micro-blogs ». Micro-blog differs from a traditional blog because posts (tweets) are limited to 140 characters. The most famous example of a micro-blogging tool is Twitter.com. Tweets are displayed on the user's profile page and delivered to subscribers who are known as followers. Recruiters can use it to display job offers and source applicants. Job search engines for Twitter have even been created (like TwitterJobSearch.com).

**Online Social Networks:** These relationship platforms can be generalist such as Facebook.com and Myspace.com or specialized like Linkedin.com or Viadeo.com<sup>2</sup> (the two main professional platforms). Such sites make it possible to stay in touch with former friends and colleagues but also to find customers, suppliers, partners and future employees. Recruiters can do head hunting and contact “passive applicants” (i.e. “proactive” as Girard and Fallery, 2010 like to state). A recommendation system makes it possible to put one’s profile to advantage with the comments of former employers.

**Virtual worlds:** These are 3-D platforms, like SecondLife.com, where user create a character (“avatar”) and evolve in a world of virtual reality. It is a real place of expression that encourages the creation of communities. Virtual worlds offer a broad range of research opportunity (Girard & Fallery, 2010). There are many issues: marketing, IT, legal, psychological, social and of course HR issues (Girard & Fallery, 2010). In June 2007, the first French recruitment forum on Second Life, called “Neo- JobMeeting”, was organised (Girard & Fallery, 2010). Alstom, Areva, Capgemini, L’Oréal and Unilog (now Logica CMG) joined the event, which recorded 1,500 participants (Girard & Fallery, 2010; Rosoiu & Popescu, 2016). Virtual worlds are a kind of a gamified strategy for recruitment purposes.

**Cooptation websites:** These websites, which are based on a network of people who are motivated (financially speaking) to find potential applicants within their entourage, are also a way of attracting new talents. These platforms are showing greater confidence (Girard & Fallery, 2010).

**Identity management websites:** These websites, such as Ziki.com, make it possible to improve a company’s visibility on the internet by, for example, centralising and synchronising on one page: company’s blog, social profiles etc. and by promoting an organisation’s page through a Google commercial link.

**RSS feeds (Real Simple Syndication):** This is a web feed format used to publish content. It makes it possible to follow in real-time different kinds of information contained on several web sites, for instance blogs. Updated information is automatically posted to a company’s navigator, on a search engine of job offers, or on other Internet sites such as aggregators (like Netvibes.com and iGoogle.com). Applicants can select several RSS feeds and be informed about new job opportunities as they become available.

**Video platforms:** These platforms, such as Youtube.com or Youjob.com, give companies the opportunity to present their work and job offers, and applicants the possibility of introducing

their CVs. Another use of video is to allow interviews by means of web cams during a meeting or an online specialised event.

These tools can be used simultaneously. For instance, a firm can use blogs, Facebook fan pages, several islands on SecondLife.com and broadcasts videos on YouTube.com. Employees could learn to use these tools to boost innovation, connect with executives and each other - and spread the good word about the company. Obviously, e-Recruitment 1.0 and e-Recruitment 2.0 are not in opposition to one another; in many cases they may even be complementary. Internet is essential and today's recruiters can hardly imagine to work without it. Web 1.0 brought tools giving access to important data bases of competencies. Web 2.0 reveals the shift from exchange-based recruitment practices to relationship-based approaches. Recruiters can increase their social capital by creating new relationships and reaching out to potential applicants. They can also develop employer branding and reputation and play a more strategic role within the company (Girard & Fallery, 2010; Rosoiu & Popescu, 2016).

### **2.3.4 Differences between traditional recruitment and e-recruitment**

In traditional recruitment processes, the recruiter receives authorisation to fill the vacancy from the human resources management department. At that time the recruitment process starts with determining the identification of a vacancy, the job description and analysis (Chapman & Webster, 2003).

E-recruitment uses Internet technology to enhance the outcome of the process for applicants and organisations. In the case of e-recruitment, companies use their websites to publish vacancies, or post them on job boards (Lee, 2005; Mento, Jones & Dirndorfer, 2002; Parry & Tyson, 2008; Sills, 2014; Hosain, et al., 2015). Applicants use the Internet to apply for any vacancies that may be on offer, by going through online sources. In Table 2.1, we will attempt to set out the recruitment process steps, using both traditional and Internet methods, as mentioned in some previous studies and summaries.

**Table 2.1: Recruitment steps set out in the traditional and electronic methods of recruiting**

<b>Recruitment steps</b>	<b>Traditional recruitment</b>	<b>E-recruitment</b>
--------------------------	--------------------------------	----------------------

<b>Attracting jobseekers</b>	Using non-technological media sources (like advertisements, leaflets, spokespersons) to attract as many candidates as possible to apply for the company job offers (Lee, 2005).	The company uses its reputation, image, online technology and other methods to attract the attention of potential applicants to apply through the firm's website (Parry, 2006; Sayedeh, et al., 2015).
<b>Sorting applicants</b>	Using paper-based evaluation of candidates to create a manageable candidate pool (Jones et al., 2002; Simón & Esteves, 2016).	Employing sophisticated, standardised electronic tests to evaluate applicants to reduce the applicant pool to a manageable number (Parry, 2006).
<b>Contact shortlisted applicants</b>	Contacting the shortlisted applicants by phone or mail and having face-to-face interviews (Jones et al., 2002; Khan et al., 2011; Holm, 2012).	Using online human resources management systems to summon shortlisted applicants and candidates as quickly as possible for interviews (Lee, 2005; Khan et al., 2011).

Source: Adapted from Cappelli (2001), Lee (2005), Simón and Esteves (2016), and Holm, (2012).

### 2.3.5 Importance of studying e-recruitment determinants:

It can be observed that the e-recruitment methods follow from systematic human resource management capabilities, whereby any firm can plan for recruiting people to work for the organisation (Chapman & Webster, 2003; Faliagka, et al., 2012).

However, examining the use of e-recruitment in handling human resources management and the reductions it may cause in time and costs of job applications, some studies have highlighted that only moderate results have been achieved in the majority of organisations (Parry & Tyson, 2008). One of the most important issues affecting the success of recruitment is the determinants of electronic recruitment (Chapman & Webster, 2003; Lee, 2005; Parry & Olivas-Luján, 2011). This topic has received less attention within these theoretical discussions (Parry & Olivas-Luján, 2011). In addition, the majority of previous researches in the field of e-recruitment have taken into consideration the importance of the candidates' perspectives, rather than those of the staff of organisations (Allen, et al., 2007; Lee, 2005; Maurer & Liu, 2007; Parry & Tyson, 2008). The determinants of e-recruitment are a widely studied concept in human resources management research (Chapman & Webster, 2003; Lee, 2005; Parry & Olivas-Luján, 2011; Parry & Tyson, 2008; Hosain, et al., 2016). Additionally, in every study the e-recruitment determinants might have different components and factors, which affect the human resource capabilities and financial performance. Handlogten (2009) defines the determinants of e-recruitment as "components and success indicators of e-recruitment (features and strategies) into actual change efforts".

Electronic determinants definitions, such as that of Borstorff, et al., (2006) state that information technology can be defined as “the step between the decision of acquiring the organizational adoption phase and the main feature and strategies that formalize the way in which the company uses it to provide its services”. They refer to this as the phase of internal determinant strategy, including stimulating the optimum use of the application (Borstorff, et al., 2006; García-Carbonell et al., 2016).

### **2.3.6 Advantages of e- recruitment**

One of the biggest advantages of e-recruitment is saving time and reducing costs of recruitment process for both applicants and hiring organisations (Abel, 2011).

- Time efficiency - web-based recruiting through dedicated software and websites dedicated to advertise jobs make it convenient for jobseekers to conduct job searches and apply for jobs (Tong et al., 2005). Online recruitment websites like monster.com, totalobs.com, reeds.com, hotjobs.com and many others give applicants a platform to search various jobs in one place under the same and different categories. The support of e-recruitment facilities reduces the time-to-hire by giving recruiters the possibility to post jobs online with a click and by enabling applicants to reply promptly by completing online forms and by simply attaching CVs3 to emails (Barber, 2006). Time-to- hire is the time for the whole recruitment process from the detected vacancy to the successful filling of these vacancies. By using the Internet, the time for these processes is reduced and can affect the organization`s proceeds. The IES research (2003) shows that companies expect online activities to speed up the recruitment process. Eisele (2006) concludes that 67% of the biggest German companies see potential to improve their recruitment process with e-recruitment. They assume a significant correlation between the cost reduction and the implementation of e-recruitment regarding time-saving during the recruitment- and administration processes. This can have a positive impact on business revenue. Pin et al. (2001) mention in their paper that, according to a survey carried out among 500 American companies, the main advantage of e-recruitment is time saving. 86% of the asked companies agreed on this. Through e-recruitment, organizations have the advantages of a faster posting of jobs, faster applicant response and a faster processing of résumés. Therefore, it speeds up the recruitment process and shortens the time-to-hire. The time-to-hire is usually measured in days and reflects the total elapsed time

required to staff an open position (Steve, 2004). Social Networking Sites as an issue in e-recruitment can hence lead to time saving between recruitment processes. Supported by these sites, recruiters can post jobs and screen applicants in a short time period.

- Information - these websites are updated regularly and send email notifications to the subscribed jobseekers when any new job is advertised on the website, thus making the application process convenient for job seekers (Galanaki, 2002; Simón & Esteves, 2015) As these services are not free for employers, it increases genuine advertisements and the seriousness of employers whilst looking for prospective candidates, thus increasing trust of the recruiter in job applicants' minds. Employers can also introduce appropriate assessment tools through e-recruitment software.
- Cost-effective - moreover, these websites are free for job applicants to register and apply, thus it is cost-effective for jobseekers to apply (Thompson, et al., 2008). For employment agencies and employers, e-recruitment is also a convenient and cost-effective tool to attract a large number of prospective employees(Lievens, et al., 2002; Zusman & Landis, 2002). In order to be able to use Internet technologies for a recruitment process, organizations first have to invest in it. In 2003, IES research found out that 47% of the companies made use of e-recruitment for reducing their administration costs and 50% of the companies expected a reduction of their costs in the future. Eisele (2006) asked the 1,000 biggest organizations in Germany about their experiences with Internet and recruitment. He found out that 67% saw the use of web-based solutions as an improvement of their recruitment processes and 49% of them practiced it and achieved lower recruitment costs. Data also shows that the use of some form of e-recruitment methods reduced the hiring costs about 87% in comparison to common traditional recruitment tools like newspapers (Lee, 2005; Cober et al., 2000). Social Networking Sites are a new part of e-recruitment and are based on the facts of e-recruitment and cost reduction. It can be assumed that using Social Networking Sites for recruitment can make a remarkable contribution to the reduction of the recruitment costs as well.
- Environmental issues - furthermore, the online application process reduces paper-based applications and travelling to the employer in person. The need for less travelling and fewer paper-based applications reduces environmental impact.

- Ethical issues - Chapman and Webster (2003) observed that e-recruitment helped to standardise recruitment systems, thus reducing the scope of preferential treatment and all types of discrimination. Moreover, it offers the same opportunity to every applicant so the organisation can recruit the best possible employee.

The various advantages of e-recruitment as discussed above created “revolution” in recruitment processes, and a radical change in the recruitment process was observed (Boydell, 2002). CIPD’s (2006) research report shows that 64% of organisations have adopted e-recruitment to attract job applications.

### **2.3.7 Disadvantage of e-recruitment**

- Skills - IT skills and the ability to apply through e-recruitment can be a barrier for some applicants who are not trained properly. There is evidence that people who are involved in professions that require minimum or no use of IT systems may not have the appropriate skills to apply for jobs using online and e-recruitment facilities. Organisations and employees of organisations that use the internet very rarely for the purpose of their job may be reluctant to use e-recruitment; the various surveys reflect that IT sectors are more inclined to use e-recruitment, as employees working in the IT sector have the required skills (Arthur, 2001; Bartram, 2000; Galanaki, 2002; (Galanaki, 2002; Simón & Esteves, 2015). Some jobs do not need computer knowledge to perform, so those jobseekers are most likely to avoid e-recruitment processes, so organizations may find e-recruitment less attractive as the applicants may not have the skills required to use e-recruitment. Looking at Eisele (2006), the scope of recruitment marketing via websites becomes wider and therefore the employer brand establishes itself and leads to a better quality of the applications. Eisele gives no indication as to the percentage of companies, which assume an improvement of the quality of applicants through e-recruitment. Pin et al. (2001) cite a study, among 500 companies in USA, in which 20% of the participating HR managers say that the screening out of under-qualified candidates is a main advantage of e-recruitment and makes it possible to improve the quality of the applicants/applications. According to both authors, e-recruitment leads to a higher quality of applicants/applications and thus it can be assumed that the use of Social Networking Sites has a positive effect on the number of qualified applicants/applications as well.

- Technology - one of the biggest disadvantages is availability of appropriate technology and internet connection speed for applicants to apply through e-recruitment, though in recent years there have been massive improvements noticed in these areas (van Birgelen et al., 2008; Dhamija, 2012; Simón & Esteves, 2015).

### **2.3.8 Internal determinants**

Technology quality plays an important role in e-recruitment, since to make the recruitment process effective it needs to be user-friendly. The focus at the time of choosing technology to be used in e-recruitment should be on its usability factor, so that applicants with different levels of IT skills can draw relevant information easily. The study conducted by Simón and Esteves, (2015) found that the organisation's website and style attracts applicants to apply for jobs through the website. A similar observation is made by Williamson, et al (2003) that the applicant's eagerness and ability to apply using the website depends on the website design and its function. It has been argued that attractiveness of corporate websites attracts applicants and can make them feel comfortable to apply for job vacancies. Several researches show the link between the effectiveness of interactive media used in software design as perceived by customers and their willingness to apply (Rosenbloom, 2003; Stewart & Pavlou, 2002; Simón & Esteves, 2015). Moreover, the various technologies like mobile phones and computers can help to access websites, applications, social networks (LinkedIn, Facebook) to apply for jobs and get information about job opportunities through networks and contacts (Kashi & Molineux, 2013).

Parasuraman et al. (1988) define service quality as the difference between customer expectations of the service to be received and perceptions of the actual service received. Based on this conceptualization, Parasuraman et al. (1988) developed a service measurement scale (i.e., SERVQUAL) which includes five quality dimensions (reliability, responsiveness, assurance, empathy, and tangibles). SERVQUAL has been widely accepted by scholars, but also criticized for its weaknesses and practical application (Cronin & Taylor, 1992; Lai & Hitchcock, 2016).

Zeithaml et al. (2002) observed that an organisation can utilise the internet to effectively communicate to its stakeholders to provide information and service. The service quality depends on the content of the information provided and the form or ways this information is obtained by the stakeholders. The satisfaction level of stakeholders depends on both the

content and form in which information is provided and received by the stakeholders. In the process of recruitment, the content of information provided regarding the job and career to the prospective candidates that relates to their needs and expectations, as perceived by them, depends on the effectiveness of the service provided through the website design and style(van Birgelen, Wetzels & van Dolen, 2008). The accuracy and timeliness of the information depends on the service provided by the corporations in their websites. Inaccurate and delayed information will fail to attract prospective applicants. The overall quality of the information, its presentation style, and the quantity of the information, determines the service quality of the e-recruitment. Cober, Brown & Levy (2004) emphasised the importance of good job search tools available on the website to help job applicants to identify appropriate jobs and save time. Applicants' perceptions about the organisation are linked with the quality of the website, ease of searching jobs and quality of information available through the website.

To manage today's overwhelming issues of the interlocking fields of cyber security, information privacy, network security, and socio-technical aspects of security, information assurance mechanisms on security are needed. Information assurance contains all the elements of information security (i.e., confidentiality, integrity, and availability) and provides a view of information protection that includes assurance mechanisms in different levels of controls (e.g., technology, operations, and security education & training awareness programs). According to Maconachy, et al., (2001, p. 306) INFOSEC is define as “protection of information systems against unauthorized access to or modification of information, whether in storage, processing or transit and against the denial of service to authorized users, including those measures necessary to detect, document, and counter such threats”.

Harris, Hoye and Lievens (2003) and Lee and Kozar (2006) observed the willingness of applicants to submit their personal details through websites at the time of applying for jobs. There are various tools available to rate the website in terms of its reputation, security and quality of the service. It is important to have all the necessary tools and software to protect the website from being hacked and thus losing all the stored applicants' personal details (van rt al., 2008). Moreover, the organisation should have a sound IT policy to protect clients' information from being misused by employees under the Data Protection Act 1998. The website should display such information explicitly and show logos and certificates of organisations that monitor the quality and security of the websites to assure clients.

### **2.3.9 External Determinants**

E-recruitment management support determinants for e-recruitment are the most important components of e-recruitment, as the relevant management support activities refer to the electronic recruitment strategy formulation, the activities definition, and in which areas the adopted information technology application is introduced (DeLone, 2003; Handlogten, 2009; Parasuraman, et al., 2005; Ayeh et al., 2013).

The function of the e-recruitment activities manager is to manage and run the activities (Newton, 2006). Team members of the e-recruitment department are very important determinants that are not supposed to act without such employees working on a certain project. If these members are not qualified to meet the requirements of e-recruitment knowledge or skills, that will lead directly to affecting their ability to fulfil their tasks. Moreover, that teamwork needs to be committed to e-recruitment activities. Additionally, the team needs to consist of members who have the required knowledge and skills and are committed to the implementation (DeLone, 2003; Ettinger, et al., 2009; Handlogten, 2009; Parasuraman, et al., 2005; Roth, 2013).

The problem of successful firm performance has been widely expressed, and has been central in so many strategy researches for the last three decades, that many problems that relate to firm performance have been raised, and it does need more investigation to search for solutions for all of them. However, many academic strategic researchers did not clearly justify the main determinants of success and failure of any organisational performance (Bridoux, 2004). So many other researches highlighted the importance of changing the technological environment and its impact on the organisation as a new challenge of successful performance (Parry & Tyson, 2008, Lee, 2011; Cerretani, et al., 2016).

### **2.3.10 Content of a plan for implementation of e-recruitment**

When a company develops a plan, team members and managers need to be aware that they are usually set in their ways of acting (Krishnan & Singh, 2006). A plan could incorporate the perpetuation of processes and procedures because they have worked over years. However, these processes and procedures might not be the way to optimise the value of an implementation. This especially counts when the implementation concerns new projects that might bring more value when perceived differently from previous implementations. Members

should be encouraged to challenge old ways of thinking (Krishnan & Singh, 2006). In doing this, they should not focus on doing things better, but on doing things differently or even doing different things (Hayes, 2007; Nadler & Shaw, 1995).

Based on a meta-analysis carried out by previous researchers on the e-recruitment survey (Handlogten, 2009; Peteraf & Barney, 2003; Teece, 2009), the quality of electronic service has been considered for applicant satisfaction models because both information technology and e-recruitment system quality are only for measuring how successful the technology usage. However, providing service quality seems to be more important in the success of organisational information systems (Handlogten, 2009; DeLone, 2003). Therefore, this study will attempt to highlight electronic service quality as an important part of e-recruitment services determinants, in order to capture a more comprehensive idea of the success of the topic (Handlogten, 2009).

Parasuraman, Zeithaml and Malhotra (2005) state that services characteristics are more difficult to measure compared with products. The only way to improve services is going to be through the services receiver. Therefore, it is a compromise between distinguishing what actually needs to be delivered through the services and the expectations of the service receivers to evaluate service quality (Parasuraman, et al., 2005). It is important to include the services characteristics of electronic technology in the field of e-recruitment (DeLone, 2003; Handlogten, 2009). Electronic service quality is referred to as the overall support delivered by the electronic service provider, and applies regardless of whether this support is provided by the information system department or outsourced to an electronic service provider and user (Parasuraman, Zeithaml & Malhotra, 2005). The concept of electronic services quality (e-service quality) has been developed to measure the quality of the internet service delivered by companies, as perceived by customers (Parasuraman, et al., 2005; Kao & Lin, 2016).

Translating the e-service quality to the topic of this study, the positive experiences of e-recruitment relating to the electronic human resources system are critical to satisfy applicants, as poor electronic services might result in losing more customers (DeLone, 2003). If they are not able to use the system properly, this could lead to the loss of talented applicants, leaving them to work for other competitors, or inefficiencies in managing the electronic recruitment process (DeLone, 2003; Kao & Lin, 2016). As regards e-recruitment system framework strength, reflecting on the above-mentioned, the key determinants belonging to the electronic factors of e-recruitment determinants are set out.

The purpose of the present research is to study the impacts of the internal and external determinants of using electronic recruitment on the human resources capabilities and firm performance. So as to illustrate the external determinants' impacts, which have never been discussed in this track, the present research attempts to use the applicant–organisation relationship determinants from the applicants, jobseekers and companies to achieve the successful determinants of e-recruitment. The applicants' acceptance of the services are measured in terms of attitudes, feedback behaviours, and subjective norms from using the services (Marr, 2007; Sharma, 2011). Establishing the organisational reputation, creating the correct composition of the steering board and project groups, and establishing a solid initial phase based on honest documents and role descriptions will help in using the right approach; starting the project from the view of the technology.

The electronic government objectives are one of the most important ways to describe the problem of online success and failure performance; there are several researches that show that a majority of the organisational successful performance and achievement only creates moderate results (Ruta, 2005; Teece, 2009; Walsham, 2006). In the last two decades, two main approaches have been raised as a challenge for the governmental objective of recruitment and the final performance of the whole company, which are the competitive environment and diversity approach.

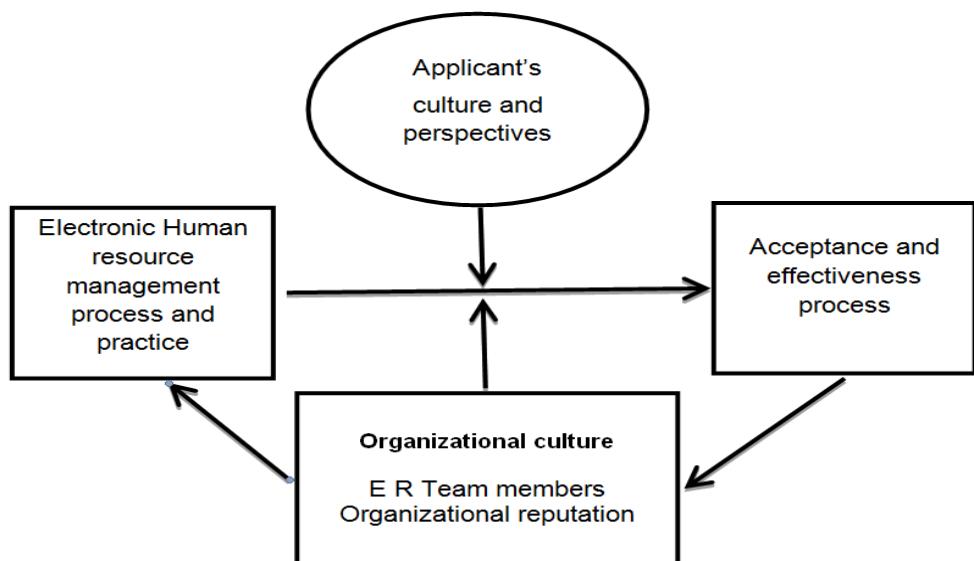


Figure 2.4. The influence of organisational culture and individual perspective on the acceptance and effectiveness of electronic human resource management processes

**Source:** (Stoneet al., 2009).

### **2.3.11 Information technology effectiveness of using e-recruitment**

Since the mid-1990s, organizations have increasingly introduced Electronic-HRM which is understood as a set of Information Technology (IT) applications that covers all possible integration mechanisms and contents between HRM and IT departments, aiming at creating value within and across organizations for targeted employees and management. (Stanton & Covert, 2004), indicate that using information and communication technologies in human resource services have become an important strategy in order to achieve competitive advantages for organizations. Moreover, previous literature has suggested that E-HRM will achieve the three main following goals: Red use costs, improving HR services, and improving strategic orientation (Bondarouk & Ruël 2009). Therefore, the application of intranet technology for HR is inevitable. Whereas, HR must become digital, particularly nowadays, when they are being pressed to prove their added value to business performance, believing as well that HRM will acquire a new dimension with the emergence of e-business (Ruël & Tanya, 2004; Bondarouk & Brewster, 2016).

The information technology effectiveness of using e-recruitment has been measured by end-user and computing satisfaction models which consider the satisfaction of end users of electronic services (Handlogten, 2009). The end-user computing satisfaction models define “satisfaction” as “the affective attitudes towards a specific computer application by someone who interacts with the application directly” (Handlogten, 2009, p.26).

## **2.4 Human Resources Capability**

According to the resource-based view, firms are seen as “bundles of resources,” which are defined as both tangible and intangible assets that are tied to the firm in a relatively permanent fashion (Hall 1992; Wernerfelt 1984; Penrose 1959). These resources confer competitive advantages in and of themselves (e.g. Amit & Schoemaker 1993; Barney 1991). According to Barney, “firm resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness” (1991, p. 101). Resources are categorized into several specific typologies, including human, physical, capital, and technological (Grant 1991). According to this perspective, sustainable

competitive advantage exists when the resources possess value, uniqueness, non-substitutability and inimitability (Barney 1991; Rumelt, 1987). As a result, performance differences across firms are because differences arising from valuable, rent-generating, firm specific resources and capabilities.

The competitive advantage of any business organisation depends on its capability to manage its most costly asset – human resource – through appropriate policies and practices (McConnell, 2004; Renckly & Renckly, 2004; Mao et al., 2016; Cohen & Olsen, 2015). The policies and practices mentioned by Rencky et al. (2004) and McConnell (2004) are through the concept of human resource management (HRM). A similar observation is made by Bratton & Gold (2003); to manage the competitive advantage and the productivity of employees due to globalisation and the advancement of technology, organisations need to focus on organisational design, culture and HR policies. The debate on HR capability to influence an organisation's competitive advantage shows that HR has become a resource-based model (Boxall, 1996; Mao et al., 2016).

#### **2.4.1 Definition**

It is worth visiting various definitions given by scholars and academics to have a clear understanding of HRM. Storey(1989) defined HRM as interrelated policies that underpin ideological and philosophical values for the organisation. He states that certain beliefs and assumptions constitute these policies that help to create policies to manage performance and establish effective employment relationships. The employee relationship is the key source for achieving an organisation's competitive advantage (Mabey, Salaman & Storey, 1998). The important point here is that the focus should be on an organisation's competitive advantage, and what processes need to be followed to achieve that comes from the strategic role of HR (Karami, 2007). The strategic HRM can be defined as a set of techniques that helps to contribute effectively to improve an organisation's performance (Fombrun, et al., 1984). The evolution of HRM with time helped to broaden its strategic role and define it more appropriately. This development of strategic HRM is reflected in Schuler and Jackson's(1987) definition of strategic HRM, which states that philosophies, policies and practices should be involved in strategic HRM. Similarly, Tyson (1995) defines strategic HRM as the organisation's intention to manage its employees explicitly and covertly through the three levels of activities: philosophies, policies and practices. Armstrong (2010) observed

that strategic HRM provides vision to the organisation for the future, and direction of the actions that are needed to achieve those visions. The above definitions point out the importance of HRM in an organisational context in providing a competitive advantage for the organisation. Moreover, it helps the organisation to prepare for future challenges by preparing manpower through effective development. As observed, it also helps to identify the actions that are required in terms of acquiring resources, identifying talents, training and developing talents, retaining talents, and managing them to gain maximum performance. Thus Gratton (2000) and Serra and Kunc (2015) observed that the good execution of strategy makes the strategy good and effective.

#### **2.4.2 HR strategy**

The HR strategy is based on two approaches; a ‘soft’ approach proposed by Storey and Sisson (1993) similar to the ‘Harvard’ model of HRM (Beer, 1985; Bruns, 2014).) and a ‘hard’ approach (Storey, 1993). The soft approach is based on the principle of motivating employees to produce efficient performance through satisfying their needs and emotionally supporting them. The hard approach is based on the assumption that employees are passive resources, and they need to be controlled and managed to gain competitive advantage in a rational, quantitative, and qualitative manner. Ulrich (1997) and Bruns, 2014) observed that to make HR strategy effective the HR practitioners need to be business partners and participate at a strategic level in making strategic decisions. The HR practitioners, as business partners of the organisation, can contribute in talent development, employee engagement, manpower planning, reward strategy, cost reduction and capability building for the organisation.

#### **2.4.3 Role of HR Practitioners**

It is the duty of human resource professionals to build strategy and policies in recruiting, selecting, training, developing, motivating, rewarding, controlling and monitoring performances of individuals and/or groups working in an organisation as its human resources (Armstrong, 2006; Rothwell, 2010). These policies need to be vertically integrated with the organisational strategy, and horizontally with other policies to help the organisation to achieve its organisational business goal(Ulrich, 1997). Thus, HRM can help an organisation

to achieve its business strategy by building an environment that supports, facilitates, and encourages employees to perform to the best of their ability. The HRM's capability and its ability to provide a competitive advantage to the organisation are possible when HR performs its strategic role through involvement at a strategic level within the organisation (Edwards, 2009). It clarifies the impression that HR gives policy direction to the organisation to effectively utilise its human resources ability to achieve the organisational goal. Furthermore, to make the HR presence at a strategic level indispensable, the HR system focus should be customer-oriented, cost-efficient, innovative and flexible to identify priorities and adapt to the organisation's need (CIPD, 2010). The strategic HRM increases employees' capability and commitment (Analoui, 1998), and integrates human resource management with the business strategy and specialists to manage HRM(Boxall, 1992; Jackson et al, 2014).

HR practitioners can effectively contribute at a strategic level by conducting HR audits to understand the effectiveness of each policy in the organisation. The process of evaluating HR policies – like manpower planning, job evaluation, selection and recruitment process, training and development policy, talent management, performance management, reward and benefits, employee relations, and stakeholder participation – is known as an HR audit (Aswathappa, 2005; Beccarel, 2005). An HR audit is a functional audit within the framework of the HR strategy to identify weaknesses of HR policies in the organization (Olalla, et al., 2002; Solomon, 1994). The above discussion emphasizes the role of HR practitioners at a strategic level and towards creating HR capability. It is worth discussing the skills and quality that HR practitioners should have to be effective in their role. Ulrich (1997) observed that with the changing role of HR practitioners, they have to play various roles in the organization. HR professionals need to be administrative experts, employee champions, change agents and strategic partners. Ulrich and Brockbank (2005) suggested four roles for HR practitioners: employee advocate, human capital developer, functional expert, strategic partner and leader. Though one may not need to perform all these roles at all times and at all levels of employment, those four roles are the roles that HR practitioners are expected to perform. The employee advocate role is based on individualism, and is responsible for developing empathy and understanding employees' needs. The human capital role helps to develop employees' skills and ability to meet current and future skills requirements of the organisation to gain a competitive advantage. As a functional expert, the HR practitioner's role is to create policies, procedures and administrative functions related to various functions of HR, like organisational design, training and development, recruiting, reward, leadership, and

motivating employees. The strategic partner role of HR is to be actively involved and committed in forming the organisation's business goals. Moreover, the strategic partner role also requires them to be a change agent by making decisions that can help the organisation to change effectively to meet its future demand. The HR practitioners are also expected to provide leadership to other functions that are horizontally integrated with HR policies to maintain an appropriate standard and quality of the policies (Ulrich & Brockbank, 2005; Lo et al., 2014).

The HR practitioner's role as discussed above leads to the discussion of what behaviour and roles HR practitioners should perform at which level and capacity.

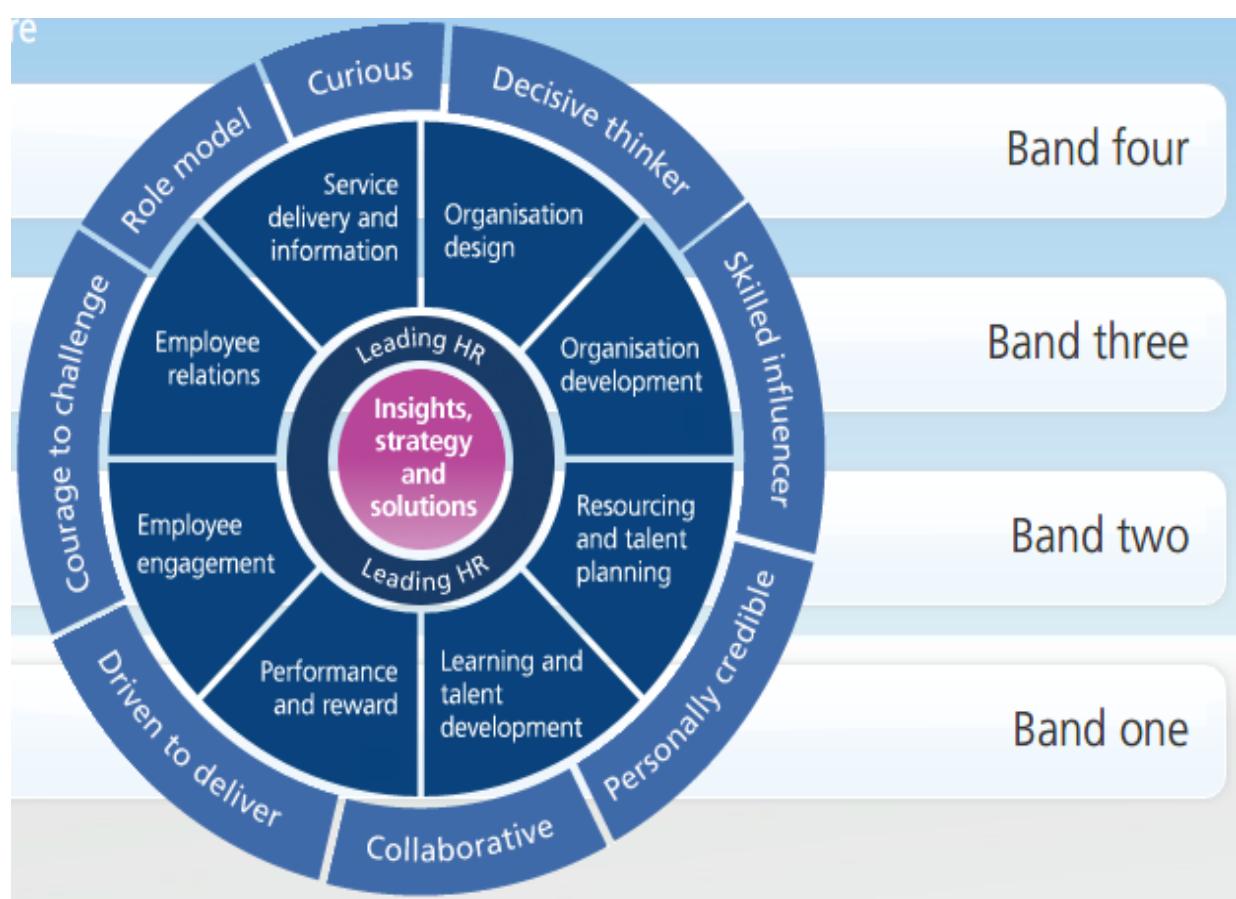


Figure 2.5. The HR Professional map (adapted from CIPD, 2011)

The framework is designed to help HR professionals of all levels and working in organisations of all sizes. The four bands show the level of a HR professional starting from

Band 1 and moving upward to Band 4. The professional map shows eight professional areas and behaviours that can help to build capability of the HR professionals working in different bands relevant to the band. The professional areas and behaviours mentioned in the diagram show the various roles as discussed above and suggested by Ulrich and Brockbank (2005), which the HR practitioners need to perform as business partners of the organisation.

#### 2.4.4 HR capability

According to Miller (2010), the biggest challenge that organisations are experiencing to create HR capability in their organisation is the ability to manage change. It has been argued that the lack of an effective training and development programme as part of the overall human resource development (HRD) strategy is the biggest concern. Miller (2010) argued that HRD should lead the capability building programme as it will help to explicitly link with business goals, an increased training and development budget, and lastly, better performance. He has argued that the benefits of capability building can be achieved through action-centred training design, continuous coaching to enable employees to apply their skills, providing effective tools, equipment and resources to employees, and broadening the horizon of change management process by applying it in other policies within the organisation.



Figure 2.6. Diagram to shape the future insight (adapted from CIPD, 2011)

The above diagram shows the four areas – engagement; alignment, agility and shared purpose; capability and talent; and performance measures and metrics – that help an organisation to maintain its performance. The HR professionals can analyse and identify the areas which require action to maintain performance. Thus the diagram helps to identify future actions and insights to the HR professionals so that they can take appropriate actions to help the organisation to manage its future skills need (CIPD, 2011). Moreover, the diagram shows a close relation between the four areas that can allow the organisation to sustain its performance.

#### 2.4.5 HR capability building factors

As discussed above, the HR capability in the organisation is built to give a competitive advantage. To build HR capability the organisation needs to take into account four factors: balancing current and future capability issues; talent management check-up; aligning capability and talent with a future focus; and leadership and management capability (CIPD, 2011).

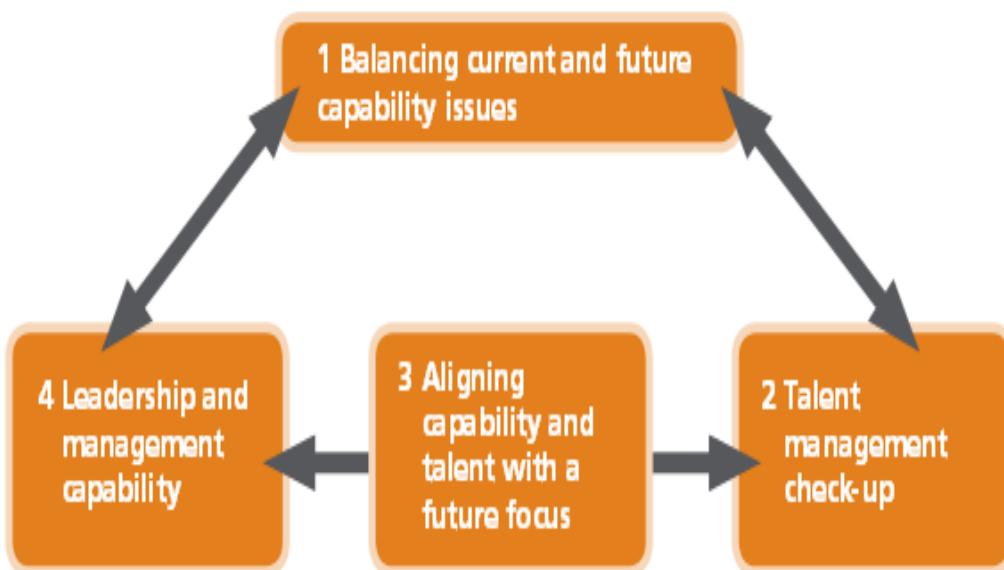


Figure 2.7. The diagram shows the process of building capability and talent  
(adapted from CIPD, 2011)

#### **2.4.6 Balancing current and future capability issues**

The organisation needs to analyse the macro and micro external environment where it operates. This analysis can help to identify threats and opportunities that the organisation may experience in future, and helps the organisation to prepare itself for any eventualities. The organisation also needs to analyse its current strengths and weaknesses to assess its capabilities. The HR practitioners need to investigate and identify the actions required to build current and future capability (CIPD, 2011). The HR professionals should identify both short-term and long-term issues that can affect the organisation's competitive advantage in a positive and negative way. The organisation should not have too much short-term focus as it can create barriers to developments required for long-term capability building actions (CIPD, 2011). Thus an effective balance between short-term and long-term goals is important. To understand the micro- and macro-environment one can follow Porter's five forces model, PESTEL, or any other analysis that will help to improve awareness of the key drivers, wider market and any other determinants through measurements or analysis(Armstrong, 2010).

#### **2.4.7 Talent management check-up**

The HR professionals are responsible for identifying and nurturing talent within the organisation (CIPD, 2011). The HR professionals can conduct a talent audit as part of an HR audit in the organisation to identify talents and match them with future HR capability to create a plan of action that needs to be followed. The process should start from attracting, recruiting, managing performance, tracking progress, developing, rewarding and retaining talented individuals in the organisation.



Figure 2.8. The talent management stages (CIPD, 2011)

It is important to identify strategically the specific talents that the organisation requires to build its future capability. The reason for strategic decision-making is important, as there are other policies like recruitment, training and development, rewards and benefits which need to be horizontally integrated to create a holistic approach towards talent management (Buchner, 2007). Moreover, other issues like employee engagement, participation, leadership style, and organisational culture are also important to create a good working environment, as Robinson (2006) observed that retention of employees depends on their relationship with their line manager and colleagues. The HR practitioners also need to analyse the organisation's life cycle to identify the relevant strategy for the organisation to maintain its capability.

#### 2.4.8 Aligning capability and talent with a future focus

The talent audit, and analysing future HR capability, can provide a better understanding to HR professionals of the steps that they need to take to prepare human resources for future challenges (CIPD, 2011). It is important that HR professionals have a proper awareness of the organisation's strategic direction and actual understanding about available talent in the organisation. HR professionals need to understand every segment of the business very well to identify the talents required to complete the tasks; only then can they align capability with talent, while also identifying talent and developing it to make it suitable for future capability.

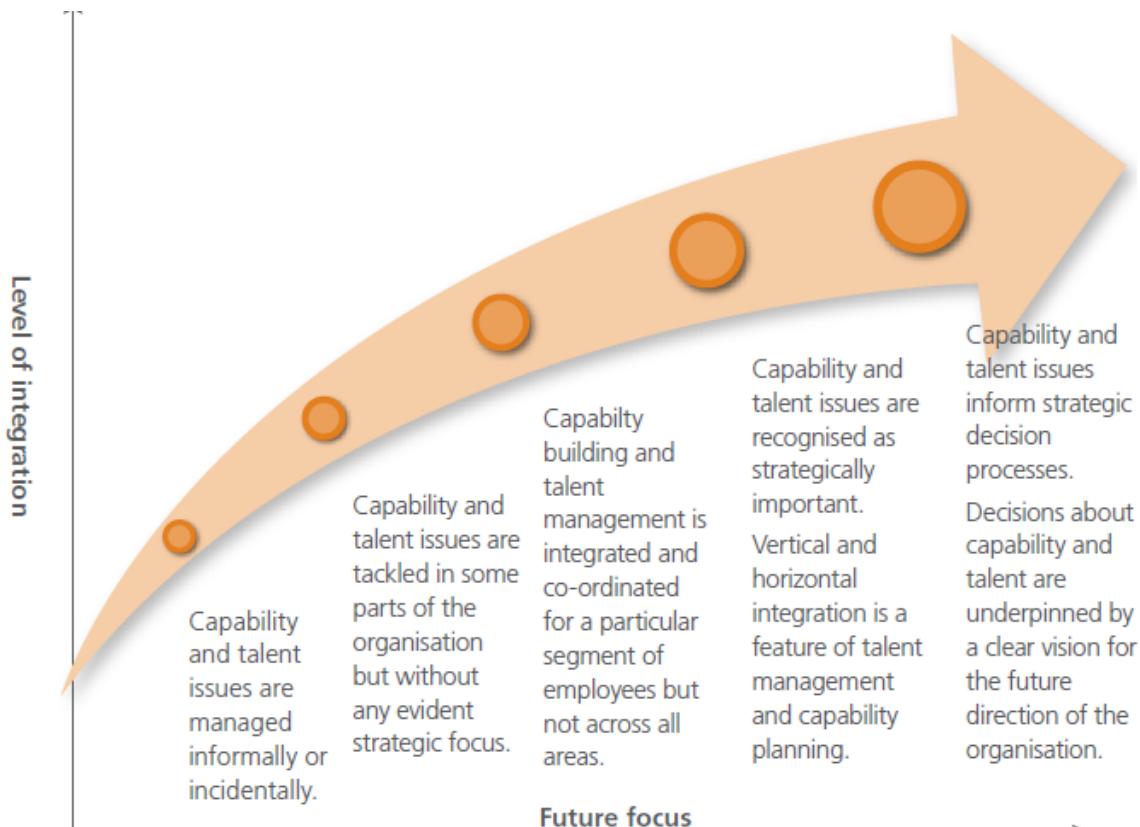


Figure 2.9. Aligning capability and talent with a future focus (adapted from CIPD, 2011)

The above diagram shows different stages of aligning capability and talent with brief descriptions of the action and strategic involvement. It also helps to identify other policies that are horizontally integrated with talent management policy, and to modify them to make them suitable for the changing situation. In some cases the strategic direction is important to align effectively.

#### 2.4.9 Leadership and Management Capability

Analysing leadership and management style can help to create a framework that gives direction to the effective leadership and management style conducive to achieving HR capability (CIPD, 2011). It is worth mentioning that the involvement of top-level managers in the organisation is not just important to decide strategy and actions but it is also important to create a culture that supports the organisation to build and prepare for future capabilities (Bai, et al., 2016). Moreover, top management, including line managers, should develop the capability to support, train and develop employees' talent to perform to the best of their

ability. The manager needs to be confident to carry out their duty, and HR practitioners should be able to support line managers (Mullins, 2007; Ulrich & Dulebohn, 2015). It is important to have effective leadership ability so that others can get motivated and have a good role model in the organisation. Fox and McLeay (1991) examined the recruitment and selection, management development, performance appraisal, rewards and recognition and career planning processes of 49 UK companies operating in the engineering and electronics sectors. The team were careful to distinguish intent (HRM systems), practice (the reality of how staff are recruited, promoted, rewarded and developed) and the internal coherence of such activities. They found a clear positive relationship between financial performance and the degree of integration between corporate strategy and the human resource management functions in practice. So it was the implementation of HR that was the important variable, rather than the supposed systems.

## **2.5 Summary**

The above discussion shows the strategic role of HR practitioners in creating HR capability for the organisation by focussing on four important factors that help to build an organisation's HR capability. It is worth mentioning that a holistic approach is important, and all four factors need to be pursued harmoniously to achieve the desired effect by building HR capability. Internal determinants e.g. technology quality, service quality, and security assurance have been identified as major factors affecting e-recruitment as well as the external determinants e.g. empowered manager and member team, content of an implementation plan for e-recruitment, HR and IT collaboration in e-recruitment, job seeker trust in e-recruitment, organizational reputation, decentralization of selection decision, and government objectives have been discussed as crucial factors influencing e-recruitment and its success. Moreover, HR practitioners should have the skills, knowledge and ability to perform their strategic role within the organisation. HR capability helps the organisation to maintain its competitive advantage by preparing its internal strength to be able to take advantage of any opportunity that may come in future. The emergence of the e-recruitment notion within the resource-based view allows scholars to analyse organizational change alignment with environmental

dynamism through a novel theoretical prism. Nevertheless, this concept still remains in statu nascendi, with certain issues undeveloped. Specifically, it is unclear how organizational resources, routines, assets, capabilities and competencies relate conceptually to e-recruitment and HR capabilities. This study provides readers with an overview of research on e-recruitment, HR capabilities, investigate key aspects of the relationship between notions present in the existing literature, and explores the essence of e-recruitment.

## **CHAPTER THREE: CONCEPTUAL FRAMEWORK**

### **3.1 Introduction**

Performance is a circumstantial concept related to the phenomenon of organisation. Performance is a measure of the change in the firm that results from management decisions and the execution of those decisions by members of the firm. Carton and Hofer (2006) state that since the perception of these outcomes is contextual, the measures used to represent performance are selected based upon the circumstances of the firm being observed. The measures selected represent the outcomes achieved, either good or bad (Carton & Hofer, 2006). This chapter discusses the firm performance, firm performance measures, determinants of firm performance, relation between e-recruitment and human resources capability and firm performance, The previous researches of the relationship between HR capability impact on firm performance, and The role of resource based view theory in the link between research variables and the research approaches.

### **3.2 Firm Performance**

The concept of firm performance needs to be distinguished from the broader construct of organizational effectiveness. Venkatraman and Ramanujan (1986) offered an enlightening figure of three overlapping concentric circles with the largest representing organizational effectiveness. This broadest domain of organizational effectiveness includes the medium circle representing business performance, which includes the inner circle representing financial performance. Organizational effectiveness covers other aspects related to the functioning of the organization as absence of internal strain and faults, engagement in legitimate activities, resource acquisition and accomplishment of stated goals (Cameron, 1986). Business performance, or firm performance as we refer to it in this article, is a subset of organizational effectiveness that covers operational and financial outcomes. Although this conceptual proposal Venkatraman and Ramanujan (1986) is widely referred to by strategic management scholars (Carton & Hofer; 2006; Richard et al., 2009; Barrick et al., 2015), the analysis of operationalization of firm performance used in empirical studies shows a wide variety of approaches covering this domain partially and in an unbalanced way. Combs, Crook, and Shook (2005) analysed all articles published in the Strategic Management Journal between 1980 and 2004 and identified 238 empirical studies that used 56 different indicators. In most cases, financial performance was used (82%) with accounting measures of profitability being the most common choice (52%). Carton and Hofer (2006) and Richard et al. (2009) reported a similar picture, analysing different journals in other time periods. Both studies reported a rate of indicator per article of close to one.

Combs et al. (2005) argue that the operational performance as described by Venkatraman and Ramanujan (1986) is best viewed as an antecedent of financial performance, mediating the effect of resources. The argument has merit and is quite clear in some cases, like production efficiency. But in other aspects, like customer satisfaction, the situation is less clear. While customer satisfaction may be an antecedent of financial performance, is it not a performance outcome, in itself as well? This depends on how one defines firm performance. Defining performance as the satisfaction of stakeholders (Connolly et al., 1980; Hitt, 1988; Zammuto, 1984; Barrick et al., 2015) helps to differentiate between antecedents and performance outcomes. In this case, customer satisfaction is clearly also an outcome (using the customer – a stakeholder – perspective) and thus part of firm performance. Two other aspects must be considered when attempting to define performance: its time frame and its reference point. It is possible to differentiate between past and future performance; past superior performance

does not guarantee that it will remain superior in the future (Carneiro, 2005; Santos & Brito, 2012; Barrick et al., 2015).

Another issue related to time is the duration of the interval (short, medium or long term) considered. The reference against which performance is being measured, e.g. the industry average, the results of main competitors, an established target, or past performance (Carneiro et al., 2007), is also important. Comparisons in relation to targets and past performance indicate the efficiency and evolution of the company. However, they are not suitable for comparing companies from different sizes and industries. Using the average value of the industry or of the main competitors as the baseline indicates companies' competitive position and may be more useful for strategic analyses (Santos & Brito, 2012).

Measurement of performance can offer significant invaluable information to allow management's monitoring of performance, report progress, improve motivation and communication and pinpoint problems (Waggoner et al., 1999). Accordingly, it is to the firm's best interest to evaluate its performance. Nevertheless, this is a management area characterized by lack of consistency as to what constitutes organizational performance. According to Cameron and Whetten (1983), the importance of business performance in strategic management can be categorized into three dimensions; theoretical dimension, empirical dimension and managerial dimension. Moreover, performance measurement is critical in performance management. Through the measurement, people can create simplified numerical concepts from complex reality for its easy communication and action (Lebas, 1995). The simplification of this complex reality is conducted through the measurement of the prerequisites of successful management. On a similar note, Bititci et al. (1997) contended that performance measurement is at the core of the performance management process and it is of significance to the effective and efficient workings of performance management. In theory, the concept of performance forms the core of strategic management and empirically, most strategy studies make use of the construct of business performance in their attempt to examine various strategy content and process issues. In management, the significance of performance is clear through the many prescriptions provided for performance enhancement. Research dedicated to governance structures relationship with financial performance was highly dependent on accounting-based indicators. Some studies have adopted individual measurements accounting-based or market-based measurements (Walls, et al., 2012; Barrick et al., 2015).

Research on performance measurement has gone through several phases during the last 30 years. In the 1970s, researchers examined how organizations used management accounting systems especially budgeting as tools for performance measurement. In the 1980s, the focus was put essentially on the budgeting process and its impact on performance. The scope of the research on performance measurement began to broaden in the beginning of the 1990s. Dixon et al. (1990) and Kaplan and Norton (1996) developed new perspectives and frameworks to organize performance measurement systems. Nanni et al. (1992) suggested that firms should increase their level of performance measurement competence. The degree of competence would depend on the fit between the design of the performance measurement system and the strategy of the firm. Kaplan and Norton suggested that the performance of a firm would increase with the use of a balanced scorecard. Surprisingly, only a few empirical studies were conducted during the 1990s and they have not really been able to test the extent to which these prescriptions are followed by organizations and their impact on the performance (Sainaghi et al., 2013).

Regardless of the measuring of the importance of organisational performance in most areas of previous academic research, there have been very few studies that have directly highlighted the question of how overall firm performance is, or should be, measured. In total, seven empirical studies on the measurement of organisational performance were identified (Brush & Vanderwerf, 1992; Chakravarthy, 1986; Barrick et al., 2015; Dess & Robinson, 1984; Venkatraman & Ramanujam, 1986; Rawley & Lipson, 1985; Cohen & Olsen , 2015). Dess and Robinson (1984) explore the usefulness of objective measures of performance. They investigated the relationship between objective and subjective types of measures of return on assets (ROA), growth in sales, and “global” performance measures.

They asserted that top management’s subjective evaluation of performance was highly correlated with objective measures, and suggested that academic researchers should use the subjective perceptual measures of ROA and sales growth under certain conditions (Dess & Robinson, 1984; Carton & Hofer, 2006; Barrick et al., 2015). In addition, they revealed that the global measures of firm performance overlap with subjective and objective measures of ROA and sales growth. Carton and Hofer (2006) suggested that there are more dimensions to overall firm performance than ROA and sales growth (Dess & Robinson, 1984; Ahmed et al., 2014).

Rawley and Lipson tested the relationships among several combinations of firm performance measures to validate that different common measures of firm performance did not show the same characteristics (Meglio & Risberg, 2010; Stucki et al., 1994; Barrick et al., 2015). The only overall firm performance measures that Rawley and Lipson found to be associated to each other at empirically significant levels were the Q ratio versus cash flow return on investment ratio (“CFROI”) familiar from capital asset pricing (Meglio & Risberg, 2010; Barrick et al., 2015).

Chakravarthy (1986) revealed that excellent and non-excellent firms would differ along common measures of performance. Demonstrating that the means of the two groups were empirically different would be the best measure of firm performance for use in strategic performance (Chakravarthy, 1986). Chakravarthy (1986) explored alternative measures of strategic performance, indicating that the empirical nature of the firm performance score was more successful at discriminating the two groups of firms than theory-based measures, which only focus upon avoiding bankruptcy by the firm in short-term performance while not sufficiently considering the long-term prosperity of a firm (Chakravarthy, 1986; Meglio & Risberg, 2010). Chakravarthy (1986) found that the firm’s ability for slack resources was a discriminator of strategic performance. Demonstrating this by creating a discriminant function, Chakravarthy (1986); Bisbe & Malagueno (2012) used eight variables including the following (Meglio & Risberg, 2010; Barrick et al., 2015):

\_ cash flow to total investment (“CFBYIN”), (2) sales to total assets (“SABYTA”), (3) research and development to sales (“RDBYSA”), (4) market to book value (“MBYB”), (5) sales per employee (“SABYEM”), (6) debt to equity (“DTBYEQ”), (7) working capital to sales (“WCBYSA”), and (8) dividend pay-out to net income (“DIVPAY”) (Chakravarthy, 1986).

Venkatraman and Ramanujam (1986) and Bellini et al (2011) empirically discovered the degree of convergence across methods of measuring business economic performance, demonstrating that sales growth, profit growth, and profitability were discriminant measures of different dimensions of business economic performance. Venkatraman and Ramanujam revealed that the purpose of this study was not to empirically derive the best measures of business economic performance in the context of the variables selected by researchers, but rather to test the convergence of methods used to obtain data on business economic performance. Specifically, they compared two different modes of assessment, objective and

perceptual, with two different sources of data, primary and secondary, using two different methods, Multi-Trait, Multi-Method (“MTMM”) and Confirmatory Factor Analysis (“CFA”). The first finding of the study suggests that perceptual assessments of business economic performance by managers are strongly correlated with secondary data and consequently, can be used as acceptable operationalization of business economic performance (Venkatraman & Ramanujam, 1986; Bellini et al., 2011).

Brush and Vanderwerf (1992) examined thirty-four different studies in the entrepreneurship literature that explicitly used firm performance as the dependent variable. They found that thirty-five different measures of performance were used in those studies, indicating that researchers perceived many different dimensions of performance, and that there was no agreement on what measures actually represent overall organisational performance. The most frequently used measures of performance were changes in sales, organisational survival, and profitability. Multiple objective measures were much more frequently employed than were subjective or perceptual measures of performance. Further, the primary means of data collection was mail surveys, and the primary sources of performance information were managers, executives, founders or owners (Brush & Vanderwerf, 1992; Schepers et al., 2014).

### **3.3 Summary of prior research on overall organisational performance**

The main aim of any organization is to sustain competitive advantage. There are various facets on which performance of an organization can be evaluated, most of which are tangible. Cost reduction, profits, sales volume, asset turnover, equity turnover, and inventory turnover are most common tangible indicators. Alternatively some intangible performance indicators satisfaction of customer and product development is used fewer times (Rhodes et al. 2008). Organization performance is a measure of an organization progress, shows how well an organization is attaining its goals (Hamon, 2003; Wu et al., 2017). Organizational performance points out the achievement in any group performance.

In empirical studies, there has been no consistency in the measures used to represent the construct of overall organisational performance in strategic management or entrepreneurship research. Further, prior empirical research has demonstrated that there are multiple dimensions to the performance construct. While Carton (2005) found that return to shareholders was the most powerful individual performance with respect to new venture

performance among companies that have undergone initial public offerings, these findings cannot be reasonably generalised to studies that use different samples (Carton, 2005). In short, there continues to be no conclusive research that has identified a “best” measure of overall organisational performance, nor has a measurement model that accurately represents the construct yet been developed (Carton, 2005, pp.17-19; Trunk Širca et al., 2013).

### **3.3.1 Overall Organisational Performance Measures Used in Recent Studies**

Venkatraman and Ramanujam’s (1986) financial dimension deals with the overall financial performance of the organisation, and is the domain of performance generally found in strategy and entrepreneurship research (Meglio & Risberg, 2010). It may be deconstructed into sub-dimensions such as profitability, growth, efficiency, financial structure, survival, cash flow, and resource accumulation. Their operational dimension deals with how the organisation is performing on non-financial issues(Shang & Marlow, 2007; Larimo et al., 2016).

This operational dimension expands upon the financial dimension, and is more commonly reflected in recent strategy and entrepreneurship research (Shang &Marlow, 2007). It may be deconstructed into sub-dimensions, such as market building, organisation building, network building, product quality, product and process innovation, quality, employee satisfaction, and customer satisfaction. Moreover, this list of potential sub-dimensions is not exhaustive for, as described above, effectiveness is a problem-driven construct, and dimensions of performance can be conceptualised to fit each problem. The third dimension of business performance is related to organisational stakeholders (Shang &Marlow, 2007). This dimension captures the multi-constituency model of performance. Consequently, this conceptualisation is both multi-constituency and multi-dimensional (Brush & Vanderwerf, 1992; Shang & Marlow, 2007; Larimo et al., 2016; Wu et al., 2017). The following figure shows the three domains of business performance as proposed by Venkatraman and Ramanujam (1986:803). According to this model, the financial and operational performance domains are subsets of business performance, which is a subset of organisational effectiveness (Shang &Marlow 2007; Carton, 2005,pp.50-52).

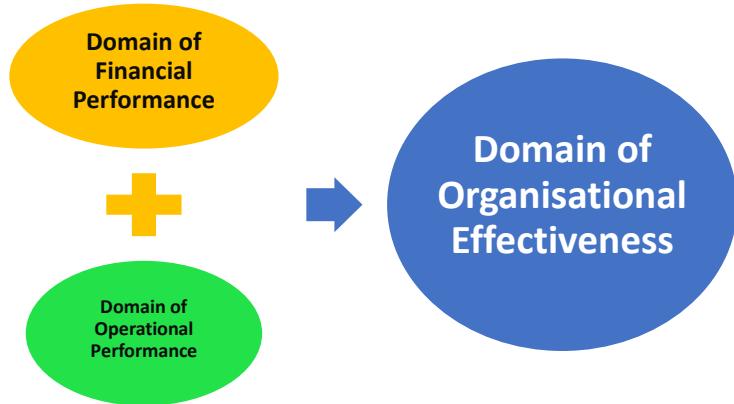


Figure 3.1. Main critical questions used for bounding and assessing firm performance

Source: Carton (2005,pp.50)

Cameron et al. (1987) provided seven critical questions for bounding and assessing firm performance. They were:

1. From whose perspective is effectiveness being judged?
2. What is the domain for assessment?
3. What level of analysis is being used?
4. Why is effectiveness being assessed?
5. What timeframe is being used for the assessment?
6. What data is being used for the assessment?
7. What is the referent against which effectiveness is being judged?

Cameron, Kim and Whetten (1987) concluded that the answers to these questions lead to a unique set of effectiveness criteria. The difficulty lies in determining the most appropriate answers for each specific research setting. The key is matching the appropriate model of effectiveness with the existing circumstances. After six years of examining the concept of organisational effectiveness, Cameron, et al (1987) concluded that there is no conceptualisation of organisational effectiveness that is comprehensive. Therefore, similar to Hofer (1983), Cameron concluded that performance is a problem-driven construct, rather than a theory-driven construct(Cameron, et al., 1987). In an attempt to summarise the literature on organisational effectiveness, Cameron, et al (1987) identified eight different commonly-used models of organisational effectiveness through that point in time.

Figure 3.2 summarises these models. These models incorporate the life cycle models as well as other models of effectiveness. Each model has advantages and disadvantages for researchers. The one common trait of all of these models is that they are not the same and do not measure the same outcomes. Therefore, generalising between studies that used different models of effectiveness may be inappropriate (Cameron & Freeman, 1991).

Model	Definition	Conceptualization
Goal Model	<b>It accomplishes its stated goals.</b>	Goals are clear, and measurable.
System Resource Model	<b>It acquires needed Resources.</b>	A clear connection exists between inputs and performance.
Internal Process Model	<b>It has an absence of internal strain with smooth internal functioning.</b>	A clear connection exists between firm processes and performance.
Strategic Constituencies Model	<b>All strategic constituencies are at least minimally satisfied .</b>  <b>It is judged excellent relative to other similar firms</b>	Constituencies have powerful influence on the firm.  Comparisons among similar organisations are desired.

Figure 3: the life cycle models

Source: (Cameron, et al., 1987:542)

Cameron summarised his findings by observing that researchers do not use much rigour in determining what model of organisational effectiveness they will use in their studies. Specifically, he identified two critical problems with the models of overall organisational effectiveness utilised in research(Cameron & Freeman, 1991):

- i. Evaluators of effectiveness often select models and criteria arbitrarily in their assessments, relying primarily on convenience (Cameron & Freeman, 1991).
- ii. Indicators of effectiveness selected by researchers are often too narrowly or too broadly defined, or they do not relate to firm performance – determinants of effectiveness often get confused with indicators of effectiveness(Cameron, et al.,1987:543;Carton, 2005, pp.54-59).

### **3.3.2 Categories of Performance Measures**

According to Neely et al. (2005), performance measurement is “the process of quantifying the efficiency and effectiveness of action”. It is also defined as the procedure to quantify the activity of an event, action or input, or the outcome. It is also considered to be an action that depends on performance measurement and that can enhance processes, motivation and behaviour. In addition, performance measurement reflects effectiveness in that it measures how much the firm is meeting customer requirements and efficiency in that it measures how the organization avails of its resources from an economic point of view while maintaining an appropriate level of customer satisfaction (Neely et al., 2005; Saunila & Ukko, 2012). Taking an example that is related to the performance of manufacturing a reliable and good-quality product, with respect to effectiveness, increasing the reliability and quality of a product may result in increasing the rate of customer satisfaction. With respect to efficiency, business costs can be reduced by decreasing any flaws in a product, which leads to fewer warranty claims. Therefore, business performance level can be determined by the efficiency and effectiveness of operations (Neely et al., 2005). According to Tidd (2001), performance measurement is divided into two types: financial performance, such as profits and investment returns, and market performance, such as growth or share. Tangen (2004) examined two measures of firm performance, financial performance (e.g. profitability, market) and operational non-financial performance (e.g. flexibility, quality, productivity). Saunila (2014) and Kafetzopoulos and Psomas (2015) also divided performance into two classes: financial performance (profitability, net profit) and operational performance (productivity and quality). Saunila and Ukko (2012) reported that there are different types of measures such as “direct and indirect, objective and subjective, and financial and non-financial ones”. Indirect measures must be used in cases where items cannot be directly measured. Objective measures are conducted by using quantitative information whereas subjective measures are made relying on people’s opinions. Previously, performance measurement usually related to

financial measures, but nowadays it is considered in terms of a comprehensive operation. In other words, many matters in an organization can affect organizational performance, such as management and leadership, operations quality, employee motivation, and a product's ability to meet customers' requirements. There are various purposes in using performance measurement, such as to lead activities, to communicate information and to motivate employees.

The previous researches list categories of performance in the prior literature; five primary categories are proposed (Sheth, et al., 2001). The primary variables used in research and practice to represent the overall organisational performance construct can be categorised into several distinct groupings. The four primary categories of overall organisational performance variables used in recent empirical research identified in chapter 2 include (1) accounting measures, (2) operational measures, (3) market-based measures, and (4) survival measures. Although several empirical studies did use size measures to represent organisational performance, most researchers view these measures as control variables to account for variance in other measures as a result of the size of the organisation.

### **3.3.2.1 Accounting Measures**

Accounting measures are those that rely upon financial information reported in income statements, balance sheets, and statements of cash flows. Accounting measures can be further subcategorised into profitability measures, growth measures, leverage, liquidity, cash flow measures, and efficiency measures.

### **3.3.2.2 Profitability Measures**

Profitability measures include values and ratios that incorporate net income or a component of net income such as operating income or earnings before taxes. It is through the generation of a profit that an organisation is able to provide a return to providers of equity capital, once the profits have been converted into liquid assets. In the absence of profits or the likely prospect of profits, equity capital providers will withdraw their resources from an organisation and redeploy them to alternative investments where a positive return can be realised.

	Variables	Variables Measures	Source
Dependent	Profitability	Net Interest Margin	Alexiou and Sofoklis, 2009. Hassan and Bashir, 2003
		Net Income/ Average Total Equity (ROE)	Alkassim, 2005. Hassan and Bashir, 2003
		Net Income/ Average Total Assets(ROA)	Alkassim, 2005. Hassan and Bashir, 2003
Independent	Assets Quality	Loan Loss Res / Gross Loans	Athanasioglou, Delis and Staikouras, 2005. Hassan and Bas
		Loan Loss Prov / Net Int Rev	Vong and Chan, 2009. Hassan and Bashir, 2003
		Loan Loss Res / Impaired Loans	Vong and Chan, 2009. Hassan and Bashir, 2003
		Impaired Loans / Gross Loans	Kabir H., 2012. Hassan and Bashir, 2003
	Capital	Equity / Tot Assets	Kabir H., 2012. Hassan and Bashir, 2003
		Equity / Net Loans	Kabir H., 2012. Hassan and Bashir, 2003
		Equity / Cust& Short-term Funding	Kabir H., 2012. Hassan and Bashir, 2003
		Equity / Liabilities	Javaid <i>et al.</i> , 2011. Hassan and Bashir, 2003
	Operations	Net Interest Margin	Wasiuzzaman and Tarmizi, 2010. Hassan and Bashir, 2003
		Return On Avg Assets (ROAA)	Alexiou and Sofoklis, 2009. Hassan and Bashir, 2003
		Return On Avg Equity (ROAE)	Alexiou and Sofoklis, 2009. Hassan and Bashir, 2003
	Liquidity	Net Loans / Tot Assets	Kabir H., 2012. Hassan and Bashir, 2003
		Net Loans / Dep& ST Funding	Sufian and Habibullah, 2010. Hassan and Bashir, 2003
	Leverage	Equity/ Total Assets%	Amor <i>et al.</i> , 2006. Hassan and Bashir, 2003
		Loans to Assets	Amor <i>et al.</i> , 2006. Hassan and Bashir, 2003
	Structure	Liabilities / Equity	Kabir H., 2012. Hassan and Bashir, 2003
	Macro-variables	Gross Domestic Product Per Capital	El-Gamal and Inanoglu, 2004. Hassan and Bashir, 2003
		Gross Domestic Product Growth Rate	Athanasougla, Brissimis and Dan, 2005. Hassan and Bas
		Inflation	Javaid <i>et al.</i> , 2011. Hassan and Bashir, 2003

**Table 3.1. Profitability measures**

### 3.3.2.3 Growth measures

Growth measures include values and ratios that present some indication of organisational growth. Growth has been conceptualised both in the context of resources and from a business perspective.

#### **3.3.2.4 Efficiency Measures**

Efficiency measures include values and ratios that represent how well the organisation utilises its resources. Typical efficiency ratios include asset turnover, net profit per employee, net profit per square foot, sales per employee, and sales per square foot. Clearly, most efficiency ratios require information that comes from outside the three basic financial statements (Foreman-Peck, 2012).

#### **3.3.2.5 Operational Measures**

Operational measures include variables that represent how the organisation is performing on non-financial issues. Measuring performance on non-financial dimensions has received renewed attention over the past many years as corporations have adopted a “balanced scorecard” approach for the integration of strategy and performance measurement (Kaplan 1984; Kaplan & Norton, 1992; Northcott & Taulapapa, 2012).

#### **3.3.2.6 Market-Based Measures**

Market-based measures of performance include ratios or rates of change that incorporate the market value of the organisation. These variables include returns to shareholders, market value added, and holding period returns. The calculation of these variables requires a market valuation for the company and is generally only available for publicly traded companies (Knaup et al., 2012).

#### **3.3.2.7 Survival Measures**

Survival measures of performance simply indicate if the organisation remained in business over the period of interest. Hogan and Coote (2013) and Drucker (1954) proposed that survival is the ultimate measure of long-term performance.

#### **3.3.2.8 Measurement: A conceptual Overview**

Measurement is the “careful, deliberate observation of the real world for the purpose of describing objects and events in terms of the attributes composing a variable.”(Babbie, 1998). Values are assigned to aspects of objects, not the objects themselves, or in other words, they are used to describe characteristics of the objects. For example, an observer does not assign a measurement to a box, rather he/she “measures” its length, width, and height. All other aspects of the object being observed, which are not assigned values, and on which similar objects could differ, are ignored. Therefore, when specific aspects of an object are chosen to be measured as representing the entire object, some features of the object (or information

about it) are lost, and different people may choose to measure different aspects of the same object. Observations can be categorised as direct, indirect, and constructs (Babbie, 1998). Direct observables are attributes of an object that can be observed both simply and directly, such as colour.

### **3.3.3 The Role of Measurement in Theory Building and Testing**

Theory building refers to making and testing a set of assertions that explain or predict a particular phenomenon that holds true across a prescribed range of specific instances (Weick, 1989).

In entrepreneurship and strategic management research, most theories are developed to predict or explain the impact of management actions on performance. In some theories, the performance construct of interest is overall organisational performance. In other theories, the performance construct may be more narrowly defined to outcomes such as new venture formation or customer satisfaction (Subrahmanyam, 2009; Wu et al., 2017).

Theories can be presented as relationships between independent variables and dependent variables. If the variables are well specified, the relationship may be able to be represented mathematically in equation form. The purpose of empirical research is to test propositions about the hypothesised relationships represented in the theoretical model(Bourgeois, 1985; Van de Ven & Poole, 1995). To accomplish this task, researchers must be able to make observations of all independent and dependent measures specified in the model or conceptual framework. Based upon the relationships that are found to exist among the variables observed, conclusions are drawn about the ability of the model or conceptual framework to adequately represent the phenomenon of interest. In other words, the theory becomes “grounded” by the data (Subrahmanyam, 2009).

There are three primary purposes of research: exploration, description, and/or explanation (Babbie, 1998).Exploration is the attempt to develop an initial understanding of a phenomenon. Description is the precise measurement and reporting of the characteristics of a phenomenon. Explanation is the discovery and reporting of the relationships among aspects of a phenomenon. Regardless of whether the purpose of the research being conducted is to explore, explain, or describe, measurement is necessary for research to achieve these

purposes. Since measurement involves the assignment of values to attributes of the phenomenon of interest, it is in the interests (Carton, 2005, pp.60–66; Subrahmanyam, 2009; Wu et al., 2017).

### **3.3.4 Main Determinants of the Firm Performance Models**

“In the organisational policy researches, there are two main groups of determinants are closely related to firm performance measurements. The first one is based mainly on an economical point of view, which has been emphasizing the importance of external organisational factors in determining firm performance success and failure. However, the second one is based on the behavioural and sociological prototype. Surprisingly, little research has been done to participate the two main approaches and estimate the relative impacts of each on firm performance” (Carton, 2005, pp. 63-66).

### **3.3.5 Economic Model of Firm Performance**

Manufacturing organisation economics has proven invaluable to researchers of strategy content in providing a basic theoretical perspective on the influence of market structure on firm strategy and performance(Gordon & DiTomaso, 1992; Hansen & Wernerfelt, 1989). While there is a range of specific models, major determinants of firm-level profitability include: (1) type of industry in which the firm competes; (2) the firm's position relative to its competitors; and (3) the quality or quantity of the firm's resources (Hansen & Wernerfelt, 1989).

Our economic model includes several of the explanatory variables considered in the literature. We divide these into the three classes mentioned above (Dess & Robinson, 1984).Each is discussed in turn.

### **3.3.6 Organisational Model of Firm Performance**

On the other hand, organisational researchers have developed a wide variety of models of performance. While the organisation behaviour and theory literatures are rich in the breadth and depth of their studies of organisation structures, systems, and people, the variety of conjectures and empirically tested models makes aggregation difficult (Dess & Robinson, 1984; Selvam et al., 2016). In broad terms, this stream of research suggests that managers can influence the behaviour of their employees (and thus the performance of the organisation) by

taking into account factors such as the formal and informal structure, the planning, reward, control and information systems, their skills and personalities, and the relation of these to the environment (Dess & Robinson, 1984). That is, managers influence organisational outcomes by establishing 'context', and that context is the result of a complex set of psychological, sociological, and physical interactions.

The difficulty in working with such multi-faceted models lies in developing, collecting and aggregating appropriate measures (Batt & Colvin, 2011; Black & Lynch, 2001; McArthur & Nystrom, 1991; Wu et al., 2017). Many constructs within the literature are difficult to measure, and those which are relatively easier to capture, are often at the micro (individual) level (Dess & Robinson, 1984).

Batt and Colvin (2011), attempted to capture the multi-dimensional aspect of these significant organisational phenomena – the effects of structure, motivation, group dynamics, job enrichment, decision-making, leadership, goal-setting and planning, etc. in organisational climate. Long a prominent concept within the organisational sciences, 'organisational climate' was originally defined as follows:

The concept of climate provides a useful bridge between theories of individual motivation and behaviour, on one hand, and organisational theories, on the other. Organisational climate, as defined here, refers to the perceived, subjective effects of the formal system, the informal 'style' of the managers, and other important environmental factors on the attitudes, beliefs, values and motivations of the people who work in a particular organisation (Litwin & Stringer, 1968; Wu et al., 2017).

And more recently as: the perceived properties or characteristics found in the work environment that result from actions taken consciously or unconsciously by an organisation and that presumably affect subsequent behaviour (Steers & Lee, 1983: 82). Just as geographic regions have different 'climates' as a result of the immediate interaction of temperature, humidity, wind, sunlight, rain and snow to make them favourable or unfavourable climates for living, so can a firm have – through the interaction of its facilities, structures, systems and people – a favourable or unfavourable work climate.

The organisational climate, nowadays, uniquely refers to a broad class of organisational and perceptual variables that reflect individual-organisational interactions, which affect individual behaviour (see, for example Gelade and Ivery (2003) and Rogg et al. (2001)). It is important because it provides a conceptual link between analysis at the organisational level and at the employee level, precisely the requirements of this study (Rogg et al., 2001).

### **3.4 Relation between E-recruitment and Human Resources Capability and Firm Performance**

#### **3.4.1 The link between the research main variables:**

Creating a competitive advantage and subsequently higher organisational performance, the company must nowadays recruit applicants who possess the necessary knowledge, skills and abilities to actually do the job. Also, the organisational environment has seen a rapid development of Internet technology to create organisational capabilities (Patas, et al., 2012). A series of empirical studies confirms that the successful use of electronic services in the business world can not only create market opportunities through changing a firm's model, optimising organisational structures and processes and improving market penetration, but can also significantly enhance organisational capabilities by recruiting the right employees to work in the firm, increasing valuable customer relationships through competitive market prices and improving organisational competitiveness through the innovative use of technologies (Nevo & Wade, 2008).

Electronic recruitment tools help the company in planning for recruiting the right people to work for the organisation (Chapman & Webster, 2003). However, examining the use of e-recruitment in handling human resources management and the reductions it may cause in time and costs of job applications, some studies have highlighted that only moderate results have been achieved in the majority of organisations (Parry & Tyson, 2008; Hosain et al., 2016).

Electronic recruitment, in this way, is an HR field that influences the ability of employees (Lee, 2005; Mento et al., 2002; Parry & Tyson, 2008; Hosain et al., 2016). Recruiting people with inappropriate competences and skills (abilities) might affect their individual performance and the overall firm performance, which might doom organisations to fail or, at the very least, slow down growth. Seen the other way around, recruitment is more effective

when it enables organisations to attract applicants with the right abilities, who meet organisational expectations and reinforce those (Parry & Olivas-Luján, 2011).

### **3.4.2 The Importance of e-recruitment Determinant Links with Human Resources Capabilities and Firm Performance**

#### **3.4.2.1 E-recruitment: internal and external determinants**

E-recruitment is providing service quality, which seems to be more important in the success of organisational information systems (Handlogten, 2009). Therefore, this study will attempt to highlight electronic service quality as an important part of e-recruitment services determinants in order to capture a more comprehensive idea of the success of the topic (Handlogten, 2009). The main e-recruitment internal determinants are electronic system framework strength. Reflecting on the above-mentioned, the key determinants belonging to the electronic factors of e-recruitment determinants are set out (Roth et al., 2013; Singh , 2017).

The external determinants of e-recruitment are the use of the applicant–organisation relationship determinants from the applicants, jobseekers and companies to achieve successful e-recruitment. The applicants' acceptance of the services is measured in terms of attitudes, feedback behaviours, and subjective norms from using the services (Marr, 2007; Sharma, 2011), establishing the organisational reputation, creating the correct composition of the steering board and project groups, and establishing a solid initial phase based on honest documents and role descriptions. Finally, electronic government objectives are among the most important ways to describe the problem of online performance success and failure (Ruta, 2005; Teece, 2009; Walsham, 2006; Da Cruz & Marques, 2014).

#### **3.4.2.2 Internal Determinants' Possible Effects on e-recruitment**

Delivering high quality service is a difficult issue if the performance of employees does not match the expectations or philosophy of the organization regarding customer service (Joseph, 1996). The importance of employees was also highlighted by Mishra (2010, p. 1) who stated that "employees are the backbone of any business success and therefore, they need to be educated, motivated and maintained in an organization at all cost to support the organization to be globally competitive". This also applies to the banking industry, where satisfying the

customer has to start from the employees (Joseph, 1996; Metawally & Almossawi, 1998; Singh, 2017).

Internal determinants of electronic recruitment are referred to the support of the information system department or outsourced to an electronic service provider (Parasuraman, et al., 2005). The previous studies referring to the concept of electronic services quality (e-service quality) have been developed to measure the quality of the internet service delivered by companies, as perceived by customers (Parasuraman, et al., 2005; Bernardo et al., 2012; Lai & Hitchcock, 2016).

#### **3.4.2.3 External Determinants ‘Possible Effects on ER**

The present research attempts to fill the gap left by previous studies in using the applicant–organisation relationship determinants from the applicants, jobseekers and companies to achieve the successful determinants of e-recruitment and applicants’ acceptance of the services, that will help using the right approach; starting the project from the point of view of the technology. A technology is purchased because of its modern tools, and the traditional process needs to be adapted to this.

#### **3.4.3 E-recruitment Determinant Links with Human Resources Capabilities**

E-recruitment influences determinants of success of a system in regard to whether the system is used successfully and contributes to the overall business performance. Previous studies revealed some important points in the same, Simón and Esteves (2016), namely:

- 1- E-recruitment determinants are completed when the expected business performance is met. For this study, business performance or intended benefits are referred to as outcomes of the e-recruitment determinants. Thus, e-recruitment determinants are completed when the desired outcomes are realised (Chapman & Webster, 2003; Lee, 2005; Parry & Olivas-Luján, 2011).
- 2-The team member of the e-recruitment department is closely related to employees working on a certain project. If these members are not qualified to meet the requirements of e-recruitment knowledge or skills, that will lead directly to affecting their ability to fulfil their tasks. Moreover, that teamwork needs to be committed to the e-recruitment activities. Additionally, the team needs to consist of members who have the required knowledge and skills and are committed to the implementation (Handlogten, 2009; Parasuraman et al., 2005; Rosoiu & Popescu, 2016).

### **3.4.4 E-recruitment Determinant Links with the Firm Performance**

E-recruitment determinants are also related to the performance of the firm, as has been widely expressed, and has been central in so many strategy researches. Many problems that relate to the firm performance have been raised, and it does need more investigation to search for solutions for all of them (Parry & Tyson, 2008). Therefore, many researches highlighted the importance of the changing of the technological environment and its impact on the organisation as a new challenge to successful performance (Parry & Tyson, 2008; Rosoiu & Popescu, 2016).

According to the resource-based view (RBV), achieving a sustainable competitive advantage depends upon the firm's ability to develop valuable, idiosyncratic, and inimitable resources (Bhatt et al. 2005). With regard to IT resources in particular, some have argued that acquiring such resources cannot lead to sustainable competitive advantage for any particular firm, simply because they are accessible to all firms (Carr, 2003). This argument has been debated and questioned however (Bhatt et al. 2005; Ray et al. 2007). First of all, with appropriate managerial IT skills (Mata et al. 1995), firms may ingeniously combine widely available IT resources to achieve a distinctive IT infrastructure and enterprise-wide information system that will be hard for competitors to imitate (Uwizeyemungu et al. 2012). Secondly, competitive advantage can result from an appropriate combination of IT resources with non-IT resources, that is, IT resources being used as leverage to enhance other organizational resources (Kalling 2003). Thirdly, even in the case where IT resources do not provide a competitive advantage, they can still contribute to organizational performance in other ways since it is understood that “creating value” is not synonymous with “creating differential value” (Kohli et al. 2008, p. 26).

Therefore, there needs to be mediation in the role of HRM capability management concerning IT recruitment. Attention needs to be paid to this issue, to train employees with the appropriate skills (Handlogten, 2009; Parasuraman et al., 2005). In this way it also looks at the firm performance (Handlogten, 2009; Parasuraman, et ail., 2005). There are three forms of training that should be covered to achieve a successful implementation (Parry & Tyson, 2008; Simón & Esteves (2016).

### **3.4.5 The Previous Studies Revealed the Following Points:**

**First:** the role of HRM capability management as a mediator. This is training with the aim of balancing current and future capability issues (Parasuraman et al., 2005), talent management check-up, creating the right cultural environment for the system and providing a context in which the application can establish an organisational foundation and link the leadership style and management capability (Ruta, 2005; Teece, 2009; Walsham, 2006).

**Second:** application area training. This refers to more detailed training about what the specific application is designed to achieve for the business as a whole and, if relevant, the particular organisational unit selected (Ulrich & Brockbank, 2005).

**Finally:** hands-on training. This concerns training about aligning capability and talent with a future focus, and actual operation of the system by the end user (Ruta, 2005; Teece, 2009; Walsham, 2006). Providing proper training to users includes all three sorts of training (Ruta, 2005; Teece, 2009; Walsham, 2006). When providing training to employees, one needs to keep in mind that there is not ‘one employee’. Employees differ from each other and this might influence processes (Ulrich & Brockbank, 2005; James & Lucky, 2015).

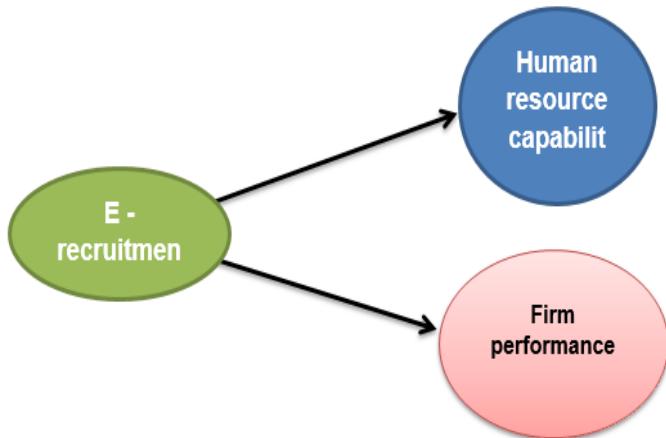
### **3.4.6 How HR Capability Impact on Firm Performance**

This research has used the previously constructed research framework as a guideline to study e-recruitment determinants (Ruta, 2005; Teece, 2009; Walsham, 2006). It is very important that we focus on the holistic approach, which is crucial to achieve the desired effect by building HR capability (Yan-li, Su-Ying & Jin, 2011). Moreover, HR practitioners should have the skills, knowledge and ability to perform the role within the organisation. The HR capability helps an organisation to maintain its competitive advantage by preparing its internal strength to be able to take advantage of any opportunity that may come in future (Ruta, 2005; Teece, 2009; Walsham, 2006; Black & Johnson , 2012; Krammera et al., 2018).

Non-IT resources refer either to “complementary assets” (Davern et al. 2000, p. 122) that enable the firm to leverage the value of its IT resources, or more generally to “conversion contingencies” (Davern et al. 2000, p. 124) that affect the transformation of the firm’s IT investment into value. Applying the RBV, Piccoli and Ives (2005) have demonstrated how non-IT resources can contribute to the sustainability of an IT-based competitive advantage. The long list of complementary resources retrieved by these researchers from literature

illustrates how numerous and varied non-IT resources can be. It is thus common for IT studies to emphasize a limited number of such resources. For example, Jeffers et al. (2008) considered two non-IT resources, namely openness of communication and business work practices. As mentioned previously, we consider here that among non-IT resources, HR capabilities are the ones that are most critical in their capacity to enable – or be enabled by – IT capabilities (Aral et al. 2012; Krammera et al., 2018). Now, in the strategic management literature, two mechanisms are seen to allow a particular firm to outsmart its competitors, namely resource-picking and capability-building (Makadok 2001). In this regard, the firm's HR are key factors for both mechanisms as competent employees are needed to “pick the right IT resources and to build the appropriate IT capabilities. A firm endows itself with capable human resources through HRM practices meant to recruit outstanding candidates, and to develop, motivate and empower them. Therefore, HR practices (training, information, integration, participation, and remuneration) are used here as surrogate measures of HRM capabilities. Training refers to organized activities (general or tailored) to increase the knowledge and competencies of employees. Information refers to the diffusion of strategic, economic, and operational information to employees. Integration refers to practices such as job description, recruitment and performance appraisal meant to attract and retain highly-qualified employees. Participation refers to the level of involvement of employees in the decision making process. Remuneration refers to the implementation of incentive compensation (such as profit sharing, stock ownership) for employees.

Therefore, the purpose of this research is to explore e-recruitment determinant impacts on the firm performance and human resource capabilities, not to test the framework. The research framework starts from the assumption made in the beginning, that e-recruitment determinants are important in establishing successful e-recruitment performance (Yan-li, Su-ying& Jin, 2011; Cohen & Olsen , 2015; Krammera et al., 2018).



*Figure3.3. HR capability impact on firm performance: Source: Ruta (2005)*

### **3.4.7 The Previous Researches of the Relationship between HR Capability Impact on Firm Performance**

The theoretical framework provided by the resource-based view (RBV) facilitates clear analysis of innovation and its association with performance (Damanpour et al., 2009; Galende & de la Fuente, 2003; Mol & Birkinshaw, 2009; Yang,et al., 2009). RBV uses the internal characteristics of firms to explain their heterogeneity in strategy and performance. According to the main assumption of RBV, only firms with certain resources and capabilities with special characteristics will gain competitive advantages and, therefore, achieve superior performance.

The distinctiveness of a factor depends on its rarity, value, durability, nonsubstitutability, inimitability and appropriability of generated rents (Amit & Schoemaker, 1993; Barney, 1991). Sustainable competitive advantage determines the ability of an organization to reconfigure and to constantly renew its supply of valuable and idiosyncratic resources and capabilities to foster innovation (Eisenhardt & Martin, 2000; Winter, 2000; Krammera et al., 2018).

According to RBV, a capability refers to the deployment and reconfiguration of resources to improve productivity and achieve strategic goals (Makadok, 2001). A capability is a lower-order functional, operational or technological capability (Ortega, 2009). Technological IC is

identified as one of the most important sources of competitive advantage (Coombs & Bierly, 2006) owing to its causal ambiguity (González-Álvarez & Nieto-Antolín, 2005). Specifically, technological IC is the ability to perform any relevant technical function or volume activity within the firm, including the ability to develop new products and processes, and to operate facilities effectively (Teece, et al., 1997). Recent empirical research provides statistical evidence that technological IC is an important determinant of FP (Ortega, 2009; Krammera et al., 2018).

HRM's capability and its ability to provide a competitive advantage to the organisation are possible when HR performs its strategic role through involvement at a strategic level within the organisation (Edwards, 2009). It clarifies the impression that HR gives policy direction to the organisation to effectively utilise its human resources ability to achieve organisational goals. Furthermore, to make the HR presence at a strategic level indispensable, HR system focus should be customer-oriented, cost-efficient, innovative, and flexible to identify priorities and adapt to the organisation's need (CIPD, 2010).

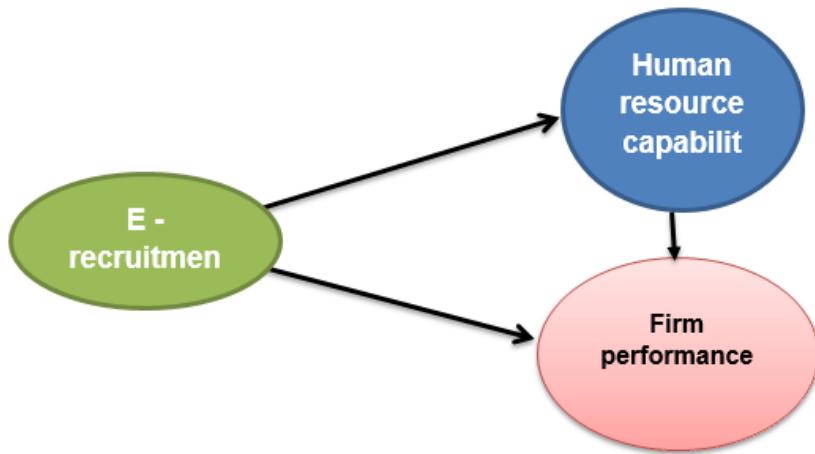
The previous studies show that a successful e-recruitment model has multiple success indicators, which are understood as e-recruitment productivity, e-recruitment quality and e-recruitment appropriation (Ruta, 2005; Teece, 2009; Walsham, 2006; Constantinos, et al., 2016; Chhen & Olsen, 2015). In addition, e-recruitment determinants consist of two components, defined as strengths of the e-recruitment system and management support concerning e-recruitment implementation (Ruta, 2005; Teece, 2009; Walsham, 2006). In turn, the components consist of several factors. Because of the lack of available explicit knowledge regarding e-recruitment implementation, the desire exists to explore this phenomenon. This was done by exploring this phenomenon at KLM using the research framework (Yan-li, et al., 2011).

The intense competition arising from globalization demands innovation, speed, adaptability, and low cost. It has also brought about the need to manage HR strategically so that they become a source of competitive advantage. The traditional the effects of culture and HRM practices 563 downloaded by EKB Data Center at 14:13 13 August 2016 (PT) sources of competitive advantage such as patents and economies of scale (Pfeffer, 1994) are no longer the assets that differentiate the firm. Instead people management practices are the drivers (Cappelli et al., 1996), core competencies (Hamel & Prahalad, 1994), and capabilities (Stalk et al., 1992) that help to develop new products, provide world-class customer service, and implement appropriate organizational strategy. A chief executive officer (CEO) of a big

company in Asia, tapping the many new opportunities in the growth corridor of the Asia-Pacific region, or even the world, noted that it is the human matrix that determines the success of ventures (The Straits Times, 1995). Further, one needs to bear in mind that people, not the firm, are the adaptive mechanisms in determining how the firm will respond to the competitive environment (Rundle, 1997). As such, recent decades have seen the HR becoming a unique and differentiating asset and playing an increasingly important role in organizations. For example, in a majority of the Fortune 500 companies, the head of the HRM is an officer (usually a vice-president) who answers directly to the CEO. In many companies, the head of HRM sits on the board of directors, or the planning committee or both. A 1992 survey of the top HR executives in 151 Fortune 500 companies found that a majority of the top HR executives have significant input in corporate decision-making. Seventy-one per cent of the same executives reported that their current HR functions were more involved in implementing business strategies than in past years. Several recent large samples, cross-industry studies have reported that firms using innovative HR practices financially outperform firms that do not use such practices (Research Reports, 1995). One study found that HR strategy drives 15 per cent of profit performance for the average company (Roberts, 1995). As a direct result of increasingly available computing power, numerous strategies can be used to help the HR department contribute to the bottom line (Rhodeback, 1991). The basic idea behind these strategies is to translate knowledge of HR into terms that have tangible and recognizable economic benefits, especially to the operating managers.

In order to gather details about the implementation of e-recruitment impacts on firm performance, in-depth study was necessary. This was done by investigating this phenomenon in its real-life context. This provides a rich understanding regarding the context of the research and its process (Ruta, 2005; Teece, 2009; Walsham, 2006). Investigation was carried out based on the opinions and meanings of firm performance (Ruta, 2005; Teece, 2009; Walsham, 2006; Constantinos et al., 2016).

*Figure 3.4. HR capability impact on firm performance*



### 3.4.8 The Role of Theory in the Link between Research Variables and the Research Approaches:

In the beginning, this research needs to focus on the new features, which are forming the new challenges that face applicants and qualified people in the global job markets. Among the most important challenges that face jobseekers in the global job market (Handlogten, 2009; Parasuraman, et al., 2005) are 1) raising competition among both applicants and corporations, which has made the job market even more challenging than the last four decades, 2) job requirements and descriptions which enrich the academic and training centre with qualification which are desperately needed for both companies and jobseekers, as well as 3) the development of the electronic communications and services which create new challenges for candidates, job requirements and companies in finding the right person to be enrolled in the right position (Ruta, 2005; Teece, 2009; Walsham, 2006; Florén et al., 2014).

Although findings about e-recruitment determinants are continuously being added to the body of knowledge about the system, there are still topics that need further exploration. To illustrate the development of findings concerning this domain, Handlogten (2009), and Parasuraman, Zeithaml and Malhotra (2005) state in their research that ‘evidence indicates that the perceived success of online recruitment may be mixed, but these assertions have even not yet been fully explored empirically’ (p.259). The implementation of e-recruitment is such a topic as well. Despite the literature showing that implementation is an important factor in establishing e-recruitment success, little is known about the content of e-recruitment implementation (Handlogten, 2009; Parasuraman et al., 2005; Florén et al., 2014).

According to RBV reasoning, OI is an immediate source of competitive advantage (Goldman, Nagel, & Preiss, 1995; Sanches & Machado, 2014) that can lead to an improvement in performance (OECD, 2005). RBV regards differences in business performance as consequences of an organization's internal characteristics. The main assumption of this approach is that only firms with strategic assets will obtain sustainable competitive advantage and will, therefore, achieve superior performance.

Thus, to obtain a complete picture concerning e-recruitment implementation, more data needs to be gathered. Therefore, further exploration of this phenomenon is necessary (Lee, 2005; Mento, et al., 2002; Parry & Tyson, 2008). Deriving from the above, it is important to fill existing gaps in the scientific body of knowledge concerning e-recruitment implementation and its effectiveness. In addition, it is important for organisations to know how to effectively implement e-recruitment and to be able to profit from all possible outcomes (Handlogten, 2009; Parasuraman et al., 2005; Florén et al., 2014).

This study combined different research approaches. First of all, developing a theoretical framework to analyse the link between the three main research variables suggests the use of a deductive approach. However, refining the framework during and after the empirical data collection points to an inductive approach. Based on the foregoing, Zeithaml & Malhotra (2005) assert that resources-based analysis focuses on the fact that human resources capabilities, selection and positioning are the higher priorities of an organisation strategy (Zeithaml & Malhotra, 2005).

Such an analysis is influenced by external environment forces and will dominantly affect a organisation's overall performance, which will be the main contribution of this chapter. Therefore, selecting the strategic resources of an organisation is an integrative and complicated process which is going to determine the firm's competitive advantage and then its future performance (Handlogten, 2009; Parasuraman et al., 2005; Sanches & Machado, 2014).

Theory can be used in different ways, including as an initial guide to design and data collection, as a part of an iterative process of data collection and analysis, and as a final product of the research (Handlogten, 2009; Parasuraman et al., 2005). Nevertheless, as this research concerns different research approaches, the prominent purpose of the theory is to use it as an initial guide for design and data collection (Lee, 2005; Mento, Jones & Dirndorfer, 2002; Parry & Tyson, 2008; Sanches and Machado, 2014).

As a consequence, the research problem concerns the existing lack of knowledge about e-recruitment implementation. In the same way, online recruitment is experiencing a lack of knowledge and resources to analyse the implementation of e-recruitment (Lee, 2005; Mento, et al., 2002; Parry & Tyson, 2008; Abel, 2011; Albrecht et al., 2015).

### 3.5 Research Conceptual Framework

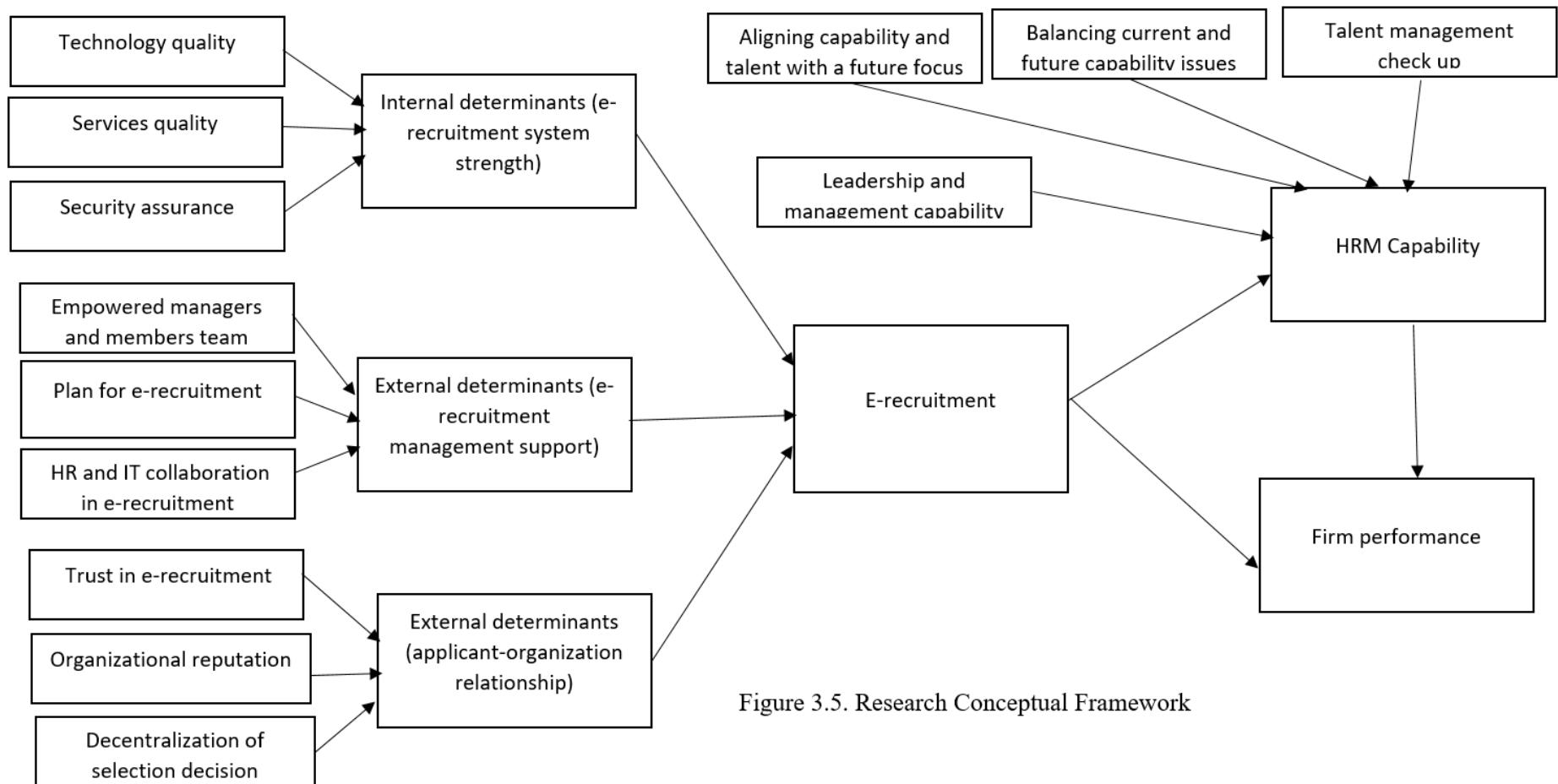


Figure 3.5. Research Conceptual Framework

### **3.5.1 Gaps in literature**

Despite significant academic interest and policy implications, the past literature offers very limited evidence on the quality of employer–employee match characteristics for Internet recruits. The central issue of interest in this regard is whether the use of the Internet for job search and e-recruitment is associated with improved firm performance. Only a single study compared Internet recruits with employees hired via more conventional recruitment channels. Hadass (2004) develops a framework in which Internet recruitment is modelled as reducing application cost to workers and improving a firm's screening technology. He suggests that Internet recruitment reduces the proportion of well-qualified applicants. Hadass uses 1995–2003 human resource data from a single multinational company with 15,000 employees. The study finds that employees hired via the Internet are more likely to have shorter job duration than those hired via employee referrals, but similar to those hired via print advertising. Due to data constraints, Hadass (2004) was able to look at only one characteristic of the employee's performance, namely, the duration of employment. This study, thus, contributes to filling this research gap. The study also provides a framework for use by academics and researchers.

**First :** Prior studies pointed out that e-recruitment determinants is a widely studied concept in human resources management research (Chapman & Webster, 2003; Lee, 2005; Parry & Olivas-Luján, 2011; Parry & Tyson, 2008), and in every study the e-recruitment determinants might have different components and factors that affect the human resources' capabilities and financial performance, therefore, the current study identifies the main determinants of e-recruitment and its effect on the firm performance and human resources capability.

**Second:** unlike previous research, this study specifically considers how internal and external e-recruitment determinants separately affect firm performance (FP) and how they interrelate to achieve a positive effect on FP. This research question is important because provides a better understanding of how firms benefit from these two types of technological e-recruitment to obtain superior FP. Until now, the impact of internal and external e-recruitment on FP has mainly been studied by considering both of them in a construct (Tsai, 2004; Sanches &

Machado, 2014) and this study tries to shed light on whether they provide the same (or different) results for a firm considering them separately.

**Third:** as Mol and Birkinshaw (2009: 1270) state, “The literature offers very little evidence of the empirical relationship between the new management practices and FP”. Consequently, debate on the impact of human resources capabilities (HRC) on FP is ongoing, with one side maintaining that HRC has a positive effect on FP (Mol & Birkinshaw, 2009) and is an essential source of competitive advantage (Hamel, 2009) and the other maintaining that its existence has a weak effect on FP (Cappelli & Neumark, 2001; Lin and Wu, 2014). This paper sheds light on this question by building on the stream of research that proposes that HRC positively affects FP.

**Fourth:** These researches concerned the measurement of an effective recruitment value of the human resources in the firm performance. The measurement of an effective recruitment value has uncertainly been with the nature of providing estimates of this uncertainty, and that is including the discounted future compensation model.

**Finally:** A limited number of researches have revealed that the companies that use electronic recruitment found that they did not translate the effective website recruitment practices into a good fit of practices. In such a problem, researchers found that human resource performance is one of the main determinants that causes the failure or success of the organisational performance. Bridox (2004) reveals that organisational performance is the outcome of many determinants, but it is very close to the human resource management, and the capability of the human resource management in the competitive environment is the most important determinant of the performance success and failure.

Therefore, based on the literature review and the identified gap, this study takes a holistic approach and adopts the perspective theories in order to investigate the influence of the internal and external determinants of e-recruitment on firm performance and the mediating role of HRM capabilities in the relationship between e-recruitment and firm performance.

### 3.6 Summary

To Summarize, this chapter has introduced the research's conceptual framework which brought together and discussed in detail the main concepts – internal determinants of e-recruitment which, in this study, consist of three main variables, and external factors which consist of main seven main latent variables on human resource capabilities, and it also explored the direct relationship between human resource capabilities and firm performance.

The next chapter discusses the methodology of the study which is used in this research and the reasons behind its adoption. Furthermore, the tools and techniques employed to implement the research are also illuminated.

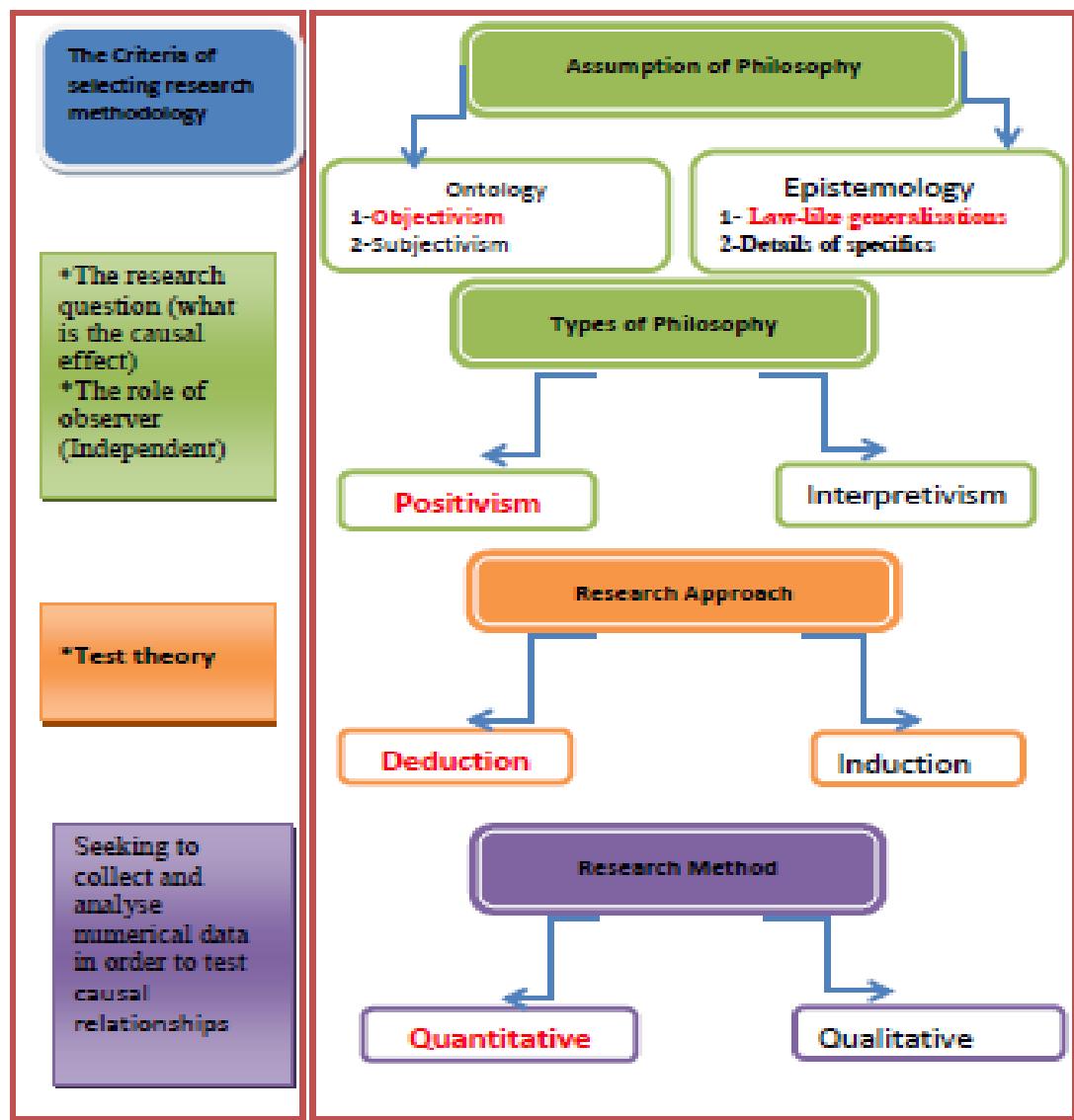
## **CHAPTER FOUR: RESEARCH METHODOLOGY**

This chapter reports the research methodology, which is a systematic way to accomplish the research objectives or to solve the research problem. It refers to how research is performed scientifically. Researchers should adopt many logical steps to studying the research problem. Research methods are defined as the procedures and techniques employed for conducting research. The methods include those related to the collection of data, statistical techniques and to evaluate the accuracy of the results. Therefore, research method is a part of the research methodology. As put by Kothari (2004), that “when we talk of research methodology we not only talk about the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others.”

This chapter is structured as follows. Firstly, Section 4.1 outlines the research philosophy. Section 4.2 presents the research paradigm and Section 4.3 provides the different types of research approach. Section 4.4 explains the research methods and Section 4.6 describes the research design and strategy. Figure 4-1 summarises the research methodology.

### **4.1 Research Philosophy**

The term research philosophy relates to the development and the nature of knowledge (Saunders, et al., 2014). There are numerous reasons why an understanding of philosophical issues is important. Firstly, it can help to refine and to identify the research methods, which are used in a particular study and to illuminate the overall research strategy, which is employed. This includes the type of gathered data and its source, and how it helps to answer the research questions. Secondly, knowledge of the research philosophy supports and assists the evaluation of different methodologies and methods and to employ suitable methods for a study. Thirdly, it may inform the selection or alteration of the research (Easterby-smith, et al., 2008). Therefore, ignoring the research philosophy can affect the quality of the research and it may become unsuitable (Neuman, 2010). Although there are many research philosophies, this research focuses on just two types, namely positivism and anti-positivism.



Red texts denote to a suitable research methodology for the study

**Figure 4.1: Research Methodology:** Source: Hair (2014)

#### 4.1.1 Positivism

Positivism has connections with empiricism. The key idea of positivism is that there is a real world that exists independently of the mind of the observers (Westwood and Clegg 2003) and the social world exists externally and that its properties should be measured through objective methods, rather than being inferred subjectively through sensation, reflection or intuition (Easterby-Smith et al., 2008). In short, positivism assumes the world from two points of the

view. First, an ontological assumption of positivism is that reality is external and objective. Second, an epistemological assumption of positivism is that knowledge is only of significance if it is based on observations of this external reality (Easterby-Smith et al., 2008).

The positivist position is employed mainly in natural science which is concerned with a single truth or reality. Positivism can be applied to social studies if the research follows a scientific method or scientific principles (Webb, 1992). Positivism supposes that objects can be investigated as hard facts and the relationships related to these facts in order to become scientific rules. Therefore, social issues can be studied in much the same way as natural issues (Smith, et al., 2005). The positivists believe that the study of consumers and marketing phenomena should be a scientific study. Marketing research establishes causal relations which support research which tries to understand, explain and predict marketing phenomena (Huberman and Miles, 2002).

Positivism and interpretivism are still the two prevalent research paradigms in IS research (Avison and Malaurent, 2013; Oates, 2006). The positivist research paradigm is based on the assumption that reality is given objectively and that, therefore, objective facts can be discovered (Avison and Malaurent, 2013; Myers, 2013). In contrast, interpretivism “assumes the world researched is subjective and open to different interpretations” (Avison and Malaurent, 2013, p. 77). For that reason, only social constructs, such as language, consciousness, shared meanings, and instruments, are believed to grant access to reality (Myers, 2013). Consequentially, positivist research is characterised by the following aspects (Myers, 2013; Oates, 2006): • It often examines naturally occurring phenomenon, which exist independently of humans. Nevertheless, the respective methods used in the natural sciences are also deemed to be suitable for studies in social and organisational contexts. • Novel or existing models are utilised and tested using measurements and observations, with the aim to explain particular aspects of the world and identify objective “truth”. For that purpose, hypotheses are confirmed or refuted, in order to advance theory. These formal propositions typically include independent and dependent variables and the cause-effect relationships between them. • The applied measurements are supposed to be “objective” and independent of the personal values and beliefs of the observers and researchers and their instruments. Therefore, methods and conclusions are examined thoroughly for bias. • As a logical and objective approach, data collected with quantifiable measures is most often analysed with mathematical modelling and statistical analysis. • The main aim is to identify unique, best

fitting laws or patterns and deduce irrefutable facts about a phenomenon that can be generalised from the investigated sample to a stated population in other situations in the real world. The positivist research paradigm underpins what is called “the scientific method”. As the accepted positivist approach to research, the scientific method is typically applied in the natural sciences. It is based on the two assumptions that • The world has a structure and follows regular laws and patterns, not random behaviour, and that • It can be investigated rationally and objectively, i.e., independently of personal attitudes and feelings of the researcher (Oates, 2006). Doing research with the scientific method comprises an iterative workflow: the researcher 1. starts with a theory, 2. collects data that, 3. when analysed, either supports or disproves the assumed theoretical models, 4. makes revisions to the theory and data generation methodology, and, by entering the next iteration, creates further data (Creswell, 2014). This procedure serves the aim to identify the universal laws, patterns and regularities, and it is mainly implemented with the experimental methodology (Oates, 2006). The purpose of the experiments is to search for evidence of cause and effect, i.e., to test if a specific approach affects an outcome (Creswell, 2014; Oates, 2006) – as described in more detail later in this chapter. The decision to rely on the positivist paradigm for this research was taken based on the following considerations, following Oates (2006) and Orlikowski and Baroudi (1991).

#### **4.1.2 Anti-positivism (Interpretivism)**

In reaction to the application of positivism to the social sciences, new paradigm stems from the view that reality is not objective and exterior but is socially constructed and given meaning by people. Berger and Luckman (1967), Watzlawick (1984) have contributed to build the social constructionism

Anti-positivism or interpretivism is important in understanding better the differences between people rather than objects (Saunders et al., 2009). Interpretive perspectives view reality as being socially constructed (Howell, 2013). Research can explain reality only through a subjective interpretation which focuses on the details of a situation, a reality behind these details and the motivations of action (Denzin and Lincoln, 2000). Research, which adopts an anti-positivistic perspective, is not concerned with the issue of general disability (Bryman & Bell, 2007).

### **Research Philosophy Adopted for This Study:**

The research philosophy of this study is positivism. The philosophy of positivism is a scientific method that applied commonly to social studies such as human behavior (Suanders et al. 2009). The advocates of positivism like Comte (1853), argue that this philosophy is concerned with a single reality as it proposes that the social world exists outside which should be measured all its effects in an objective way. Remeny and Williams (1998) contended that the outcome of such philosophy research can be law-like generalizations analogous to the laws of physical and natural sciences. That is because the social topics under investigation go mostly, on the same path as the natural sciences (Smith et al., 2005; Huberman and Miles, 2002). In fact, the researcher begins with a theory in this type of philosophy, then uses a scientific method to analyse the collected data in order to test the assumptions of the related theory (Howell, 2013). Likewise, Neuman et al (2014) argued that positivist social science is a structured technique mingling logic with clear-cut observations of a person's aims to build a concrete set of probabilistic causal laws, which could be used to forecast the future trend of a person's action.

This study is considered to be applied research as it aims to answer the research question, which is: what are the cause and effect relationships between e-recruitment, firm performance, and human resources capabilities? Some hypotheses are formulated. Therefore, this study accepts the objectivism reality of an ontological perspective. It also accepts the epistemological position as the research hypotheses focus on causality and law-like generalisations through sufficient sample size and using statistical analysis. This means that the research is independent of the subject under examination. Its role is only related to achieving reliability. It is decided that positivism is the most suitable philosophy for this study.

## **4.2 Research Approach**

It is useful to attach the research approach to the research philosophy. The choice of research approach then enables the researcher to decide on the research design, that is, the

techniques for collecting data, and the procedures of analysis. Furthermore, the chosen research approach helps the researcher to select the appropriate research strategy and method. The two main research approaches are deductive and inductive. Positivism and interpretivism are associated with deductive and inductive approaches respectively. In general, the deductive approach is normally associated with a positivist position while the interpretivism position emphasises the inductive approach. The deductive approach is an enquiry into problems based on the testing of a theory, and it moves from theory to empirical investigation (Yin, 1993). The inductive approach is the process of moving from specific observations to a more general theory (Lee and Lings, 2008). The deductive approach involves the development of theory that is subjected to rigorous testing (Saunders, et al., 2014). It moves from the particular to the general, from a set of specific observations to the discovery of a pattern (Babbie, 2006). On the other hand, theory would follow data in the inductive approach. Research using an inductive approach is concerned with the context in which such events were taking place. It involves a smaller sample of subjects which are more appropriate than using a large number, as usually found in the deductive approach.

Saunders et al (2012) state that there are two types of research approaches: the deduction approach and the induction approach. These are as follows.

#### **4.2.1 Deduction Approach (test theory)**

Deduction is "the process by which we arrive at a reasoned conclusion by logical generalization of a known fact" (Sekaran, 2003). A deduction approach adopts current theories and concepts to justify research relationships. The empirical findings are employed to test this theory (Vanderstoep and Johnston, 2009). In a deduction approach, the research is interested in studying some issues, which are related to previous theories, and concepts and these make up the research hypotheses. Moreover, the deduction approach (testing of theory) is related to quantitative research (Bryman & Bell, 2007).

**Table 4.1 Summary the main differences between the two approaches.**

<b>The Comparison Items</b>	<b>Deduction Approach</b>	<b>Induction Approach</b>
Research aims	Seeking to gain scientific facts.	Seeking to gain meaning of human actions.
Research process	Start with a theory then set a hypothesis, collecting data, and get the findings to confirm or reject the hypotheses in order to	Start with collecting data via a series of interviews/observations then analyze the data to get to classify the nature of the

	confirm or revise the theory.	problem to set a theory.
Methods choices	Quantitative method	Qualitative method
Relationship between researcher and subject	Researcher is objective to what is being researched.	Researcher is subjective to what is being researched.
Generalization	More concerned with generalization	Less concerned with generalization

**Source:** Saunders et al. (2012).

#### **4.2.2 Induction Approach (build theory)**

Induction approach is a “process where we observe certain phenomena and on this basis arrive at conclusions” (Sekaran, 2003). Basically, inductive research reverses the stages applied in the deductive research (Lancaster, 2005). An inductive research approach does not need previous theories or hypotheses. Therefore, this type of research is more flexible than the deduction approach. Saunders et al. (2012) indicate that inductive research tends to lean towards interpretivism and Bryman and Bell (2007) show that the induction approach relates mainly to qualitative research, which followed the interpretivism approach.

#### **4.2.3 Research Approach Adopted in this Study:**

This research was designed and conducted on the basis of quantitative methods. Most quantitative research follows a positivist approach to social science. Positivism is broadly defined as the approach of the natural sciences (Newman 2006). Positivistic methods are concerned with the provision of accurate reflections of reality. From the positivism point of view, the social world exists externally and all phenomena should be measured through objective methods rather than being inferred subjectively (Newman 2006). Positivism stemmed from the school represented by Auguste Comte (1798-1857), who was a French philosopher, and it was elaborated and modified by the British philosopher, John Stuart Mill (1806-1873). The main assumption of positivism is that the reality is external as well as objective, and knowledge is only of significance as long as it is based on observations of this external reality (Easterby-Smith, Thorpe, and Jackson 2008). From the point of positivism view, it can be said that both of social sciences and the natural sciences use the same methods on the basis of their different subject matter. Therefore, quantitative researchers emphasize precisely measuring variables and testing hypotheses that are linked to general causal explanations. Most quantitative researchers apply reconstructed logic that means that the logic of how to do research is highly organized and restated in an idealized, formal, and systematic form (Newman 2006). It means that quantitative researchers can describe the technical research procedures that they use as well as they can apply a fixed sequence of

phases. Additionally, quantitative research in social science addresses the issue of integrity by relying on an objective technology and mechanical techniques such like natural sciences (Neuman 2006).

The conceptual framework or research hypotheses are built based on the previous studies (theories). This study employs an appropriate statistical technique named structural equation modelling to test the hypotheses, which can be supported or rejected. Therefore, the deduction approach is a suitable research approach for this study.

### **4.3 Research Methods**

There are three research methods that can be used in human and social science research: quantitative, qualitative and mixed methods (Creswell, 2003).

#### **4.3.1 Quantitative Method**

Quantitative method is an objective and systematic process in which pieces of numerical data are used to obtain information about the world and which are analysed by using mathematical methods. Quantitative research emerges from a positivism paradigm, which operates on strict rules of logic, truth, laws and predictions (Burns and Grove, 2003). Quantitative research is concerned with producing data in a quantitative form, which can be subjected to precise quantitative analysis in a rigid and formal way. Quantitative research is used to test a theory by identifying the variables based on the previous studies, examining the research relationships and obtaining the findings (Kothari, 2004). Johnson and Onwuegbuzie (2004) raise that there are many reasons to account for the use of quantitative research which include the following:

- Quantitative method can generalise research findings when the study collects data from a random sample which represents its population and it has sufficient sample size.
- Quantitative method can achieve greater objectivity and more accurate results. It depends on a few variables and it follows many tools in order to test the validity and reliability of the data.
- Quantitative method enables researchers to compare findings statistically between different groups.
- The research results are relatively researchers' personal bias can be avoided who can keep a 'distance' from participating subjects and employ subjects unknown to them.

As a matter of principle, quantitative research is positivist (Avison and Malaurent, 2013; Creswell, 2014). Originally developed to study natural phenomena, quantitative research methods are widely used in the natural sciences. Nevertheless, many quantitative methods are also well accepted today in the social sciences, including the IS discipline, among them laboratory experiments and survey methods (Myers and Avison, 2002). Quantitative methods rely on numeric data, or on data that can be converted into numeric information. The numeric data is collected by measuring sets of variables identified as relevant for the research question. Typically, their relationship is analysed using statistical procedures, with the aim to test objective theories or explanations (Creswell, 2014). Key aspects of quantitative research are the adherence to standards of validity, objectivity and reliability, in order that inferences may be drawn from the sample to the stated population. In particular, the resulting focus on avoiding uncontrolled effects (or bias) has been criticised as a disadvantage of quantitative research in the social sciences. It is argued that, as a consequence, rigorous, unbiased experimental design requires simplification and abstraction. Thereby, valuable context information is inevitably removed that would otherwise facilitate a deeper understanding of the researched phenomena (Kaplan & Duchon, 1988).

#### **4.3.2 Qualitative Method**

Qualitative method is an interpretive naturalistic approach. Qualitative research is concerned with extracting and interpreting individuals' attitudes, perception and beliefs of situations. This means that qualitative researchers investigate topics in their original contexts in order to interpret the phenomena based on the meanings of people who have more experience of the subject. Qualitative research attempts to make sense of personal stories to solve the research problem (Thomas, 2003). It relies on words rather than numbers (Miles & Huberman, 1994). This is useful especially when discovering a new concept or phenomenon. A qualitative method seeks to understand problems in a particular environment. It is not concerned mainly with measuring the event through observation (Malhotra, et al., 2012).

The qualitative research methodology originated in the field of social sciences, with the purpose to investigate social and cultural phenomena, i.e., to explore and understand people, situations and organisations, the social and cultural contexts in which they exist, and the meaning people ascribe to a social or human problem (Creswell, 2014). It is employed widely in many different academic fields, amongst others in the IS discipline (Myers & Avison, 2002). Qualitative methods rely on non-numerical data, for example words, images, sounds

and so forth, arising from data generation methods such as interviews, documents or participant observations. Qualitative researchers make interpretations of the data, and, in doing so, bring in their personal values and position themselves in relation to the phenomenon of interest (Creswell, 2014). In addition, they interact directly with the participants of their study, which enables them to respond to the individual setting and context of each person in order to gain an even deeper understanding. Whilst quantitative measurements tell the researcher how much or how often a certain effect occurs, for example how often people behave in a specific way, qualitative methods are employed for the purpose of discovering underlying meanings and patterns of relationships, i.e., to explain and understand phenomena. Therefore, qualitative research methods can be appropriate for exploring and explaining new domains where issues are not yet (fully) understood and for investigating how people experience something which may be new to them (Hancock et al., 2007).

#### **4.3.3 Suitable Research Method**

Based on the research aims and matched with the research philosophy of positivism, and the research approach of deduction, this study considers the quantitative method a suitable research method. The deductive design uses quantitative methods to achieve the research objectives and it seeks to collect and analyse numerical data in order to test the relationship between e-recruitment, firm performance, and human resources capabilities.

### **4.4 Research Design**

Research design is considered to be an important part of reliable and valid research. It is a plan or framework for conducting the research (Yin, 2003; Saunders et al., 2014). A research design is the preparation of conditions for the collection and analysis of the data required either to solve the research problem or to achieve the research purpose (Kothari, 2004). It describes the purpose of the study and the types of questions being addressed, the techniques to be used for collecting data, approaches to select samples and how the pieces of data will be analysed (Gray, 2004). The next section discusses these issues.

#### **4.4.1 The Purpose of the Research**

There are three types of research namely; exploratory, descriptive, and explanatory research as follows.

#### **4.4.1.1 Exploratory Research**

An exploratory research aims to develop a hypothesis rather than testing or confirming a hypothesis (Kothari, 2004). Such research seeks either to identify the research problem or to address an issue when little or no prior research has been conducted to provide enough information about the subject (Saunders et al., 2014). The main focus of these researches is to discover ideas and insights. Therefore, an exploratory research is useful when the researcher does not know the essential variables to be investigated (Creswell, 2009).

#### **4.4.1.2 Descriptive Research**

Descriptive research portrays the characteristics of a particular phenomenon, event, individual, or group. It provides a description of the position of affairs as it is at present. Researchers seek to collect data about some variables such as some items such as frequency of shopping and demographic questions (Kothari, 2004; Salkind, 2010). Therefore, it is concerned with counting the frequencies. In order to collect this data in descriptive studies, researchers use survey methods and they employ comparative and correlation methods for the purpose of analyses (Kothari, 2004).

#### **4.4.1.3 Explanatory (causal) Research**

Explanatory research aims to answer the question why some variables have an effect on other variables or the explanatory research seeks to test a theory which is a set of logically organized and interconnected principles, rules, assumptions, statements and propositions which are employed to explain, describe and predict the phenomenon. Many theories illustrate the critical effects of the relationships between the variables. They hypothesise the direction, which may be positive or negative, and the strength and causal relationship between variables. Explanatory research attempts to go beyond the findings of exploratory research and descriptive research to understand the real reasons behind the phenomenon (Kothari, 2004; Saunders et al., 2014). It distinguishes between dependent and independent variables (Gray, 2009).

The purpose of a research should be determined by the research questions and research objectives. Accordingly, the present study is explanatory research. The commitment-trust theory is used to test the relationship between the dependent variable (human resources capabilities) and independent variable (e-recruitment).

#### **4.4.2 Research Strategies**

Research strategies are employed to identify the sources of data collection and the research limitations money, time, and location. These strategies help researchers to provide data that can answer the research questions or achieve the research objectives. There are many types of research strategies such as experiment, survey, and case study (Saunders et al., 2009).

- **Experiment**

Experimental research is an empirical quantitative research method. It follows the positivism paradigm and seeks knowledge through objective and systematic methods (Miller and Salkind, 2002). The purpose of the experimental research is to test a research hypothesis. Researcher manipulates either the independent variable or the experimental group subject to some special programme or condition (Kothari, 2004). An experiment seeks to discover either cause-and-effects or explanatory variables which must be defined and measured (Saunders et al., 2009).

- **Survey**

Survey is usually employed to answer the questions of who, what, how much and how many (Saunders et al., 2012). This strategy is more likely to apply in descriptive and explanatory research and it is linked mainly to the deduction approach (Gray, 2009). Normally quantitative data are collected through questionnaires or structured interviews. The data explain the relationships between the research variables. This strategy uses statistical analysis to achieve the research results (Saunders et al., 2014).

- **Case study**

Yin (2003) mentions that case study is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used”. Case study is a very popular method employed in qualitative research which aims to collect data or to observe a social unit, for example, a person, a family, a cultural group, an organisation, or a whole community. It is concerned with studying the phenomena in depth rather than widely. Also, it fully examines a limited number of events or conditions and their interrelationships. Therefore, case study is fundamentally an intensive analysis of a particular

unit under specific considerations (Kothari, 2004) and offers a deeper understanding of a complex topic.

- **Suitable Research Strategy:**

The present study aims to examine the relationship between the e-recruitment and firm performance. As discussed above, survey is usually employed to answer the questions of what, how much and how many. In addition, this strategy is more associated with the deduction approach and enables data to be collected quantitatively. Furthermore, the data, collected from the survey strategy, can be used to suggest a possible explanation of the relationship between the study's variables. Consequently, the survey is the most relevant to the research philosophy, deduction approach and quantitative method of this study.

#### **4.4.3 Questionnaire surveys**

In using the survey method, an important issue faced by researchers is related to the issue of how to access respondents properly and how to motivate respondents to candidly reply to their questionnaires. Additionally, in the survey design stage, researchers should consider that the survey method is likelihood that respondents might be unwilling or unable to provide the desired information which researchers want through the survey. Despite this kind of issue, this method has the advantages of ease, reliability and simplicity. By using fixed-response questions such as multiple-choice, the survey method can not only reduce variability in data collection stage, which can be caused by differences among interviewers, and variability in interpretation of analysis results stage, which can be caused by differences among analysts, but also enhance the reliability of responses. It also has advantages in terms that it simplifies coding, analysis, and interpretation of data. On the basis of these advantages, the survey method is by far the most common method of primary data collection in marketing research, in particularly quantitative data (Malhotra 2009). A questionnaire is considered to be a key tool in collecting data and it is the most widely used tool in social research (Lancaster, 2005). A survey will be carried out to solicit information relating to employees. This approach is consistent with the positivistic-oriented view as the dominant paradigm employed in this study. The survey approach refers to the drawing of a sample of respondents from a population for examination, from which inferences are made about the population (Collins, et al., 2003); Questionnaires can be divided into two main types according to their administration method: self-administered and interviewer-administered. The self-administered questionnaire is usually completed by the respondents, and includes three sub-categories: the internet-mediated questionnaire (via e-mail or a website), the postal

questionnaire (hard copy with a cover letter, sent by post), and the delivery-and- collection questionnaire (hand delivered, then collected later). For the interviewer-administered questionnaire, the interviewer must record the responses; this could take the form of a telephone questionnaire (the interviewer telephones the respondent and completes the questionnaire based on their answers) or an interview questionnaire (where the interviewer completes the questionnaire will face-to-face with the respondent; also called ‘interview schedules’) (Saunders, et al., 2014). In this study, the web survey method was chosen over other survey methods.

#### **4.4.4 Questionnaire Design**

Survey questions can take three possible structures: closed, open-ended, and contingency questions. Closed (or multiple choice) questions ask the respondent to tick or circle a choice from a set of answers; the respondent is restricted to the offered choices which introduces bias to some extent and does not allow any creativity on the part of the respondents. The answers to closed questions can simply be yes/no, or a range of positive to negative responses, represented by three, five or more answers. Open-ended questions on the other hand give respondents the chance to supply their own answers, by writing a number, word or some text. This type of question can help the researcher to gather new information on the topic studied. However they can be difficult to answer and to analyse. Contingency questions are a special case of closed questions; also called filter questions, they are directed at a sub-category of respondents, and seek extra or more detailed information about a previously-answered question (Sinscalco & Auriat, 2005).

There are three types of questionnaire that can be used: structured, semi-structured, and unstructured. A structured questionnaire consists of questions with predefined answers. This type is suitable for quantitative studies. Semi-structured questionnaires comprise a mixture of closed-ended, open-ended and sometimes partially closed-ended questions. These questionnaires are suitable for investigative studies. The unstructured questionnaire is made up of questions that allow free responses and is often referred to as a ‘topic guide’. This type of questionnaire is most suitable for qualitative studies (Hague, 2002).

The structured questionnaire is used in this study; to allow the respondents to choose the most relevant answers representing their opinions.

Four types of information are requested in the questionnaire: knowledge, beliefs/attitudes/opinions, behaviour, and attributes. Knowledge information is about what people know, or how well they understand something (awareness, for example).

Beliefs/attitudes/opinions type of information relates to perceptions of people, thoughts, ideas, feelings or judgements. Behavioural information is concerned with what people do or have done, in the present or past, or plan to do in the future. Finally, attributes-related information is people's personal demographic characteristics, such as age, education, income or occupation (Taylor -Powell, 1998). A mixture of these types of information is requested in the questionnaire designed for this study. Before moving on to the questionnaire layout, the variables of the conceptual framework developed in Chapter 3 are operationalized in the following section.

#### **4.4.5 Research Measures**

Looking back at the conceptual framework developed in Chapter 3 of this study. The independent variable is e-recruitment which includes internal determinants (e.g. technology quality, service quality, and security assurance) and external determinates (e.g. empowered managers and members team, job seeker trust in e-recruitment, and organizational reputation), whilst the dependent variable is the firm performance, the mediators variable is human resource habitability. In addition, this section presents the measures used in the quantitative survey.

A questionnaire with multiple item five-point Likert scales (1=strongly disagree; 5=strongly agree) will be developed for all the theoretical constructs used in the conceptual model. The Likert scale avoids the problem of development pairs of dichotomous adjectives. The scale consists of a series of statements expressing either a favourable or an unfavourable attitude toward the concept under study. The respondent will be asked to indicate the level of her or his agreement or disagreement with each statement by assigning it a numerical score. The scores are then totalled to measure the respondent's attitude.

In developing the measurement scales the relevant previous literature and studies have been reviewed. Most of the measurements for the constructs in the conceptual model are readily available in the literature (see table 4.2).

**Table 4.2. Variables Measurements**

Determinants	Previous studies' measurement	Measurement adopted in this study	Reasons for the choice of measurement
<b><u>Internal determinants</u></b>			
<b>Technology quality</b>	Alshehri et al (2012):	In Alshehri et al. (2012) the “Acceptance and use UTAUT could	

	<p>1- Used the Unified Theory of Acceptance and Use of Technology (UTAUT) Model to identify the quality of technology used.</p> <p>2. Social influence to determine technology quality.</p> <p>Cober et al. (2004) used:</p> <ul style="list-style-type: none"> <li>1. Evaluative methodology to identify the link between culture, browsing habit and technology quality.</li> <li>2. Navigational usability</li> </ul> <p>Monavarian et al 2009).</p> <ul style="list-style-type: none"> <li>1. Used the Technology Acceptance Model to identify the usefulness and quality of technology for E-recruitment context.</li> </ul>	<p>of Technology Model – UTAUT on 400 respondents had significant results.</p> <p>This study will adopt this technique as it is useful to highlight.</p> <p>In Similar vein, study adopts the navigational technique by Monaravarian et al (2009)</p> <ul style="list-style-type: none"> <li>- TAM will also be adopted</li> </ul>	<p>confirm the importance of technology quality, quality websites and support systems as one of the main significant and influential factors of e-HRM services adoption.</p> <p>The measurements used are relevant to this research.</p> <p>Similarly, other than including variables such as content and function, the navigational analysis or approach is useful for this study as it allows for analysing the culture of Saudi Arabia when it comes to their attitude to navigation.</p> <p>TAM remains one of the most useful model for analysing technology use and quality.</p>
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<b>Service quality</b>	<p>Ettinger et al (2009) used:</p> <ol style="list-style-type: none"> <li>1. Service-quality criteria of web recruiters - to establish the quality of Websites used to recruit candidates.</li> <li>2. A content analysis – analysing contents to identify accessibility, usability and feedback.</li> </ol> <p>Doll et al. (1994) and Bernardo et al. (2012). .</p> <ol style="list-style-type: none"> <li>1. Used "A confirmatory factor analysis of the end-user computing satisfaction instrument."</li> <li>2. The authors developed a systems for end -user satisfaction to test whether website users were happy/unhappy with the services</li> </ol>	<p>Using Ettinger et al (2009) content analysis.</p> <p>Also, the study will adopt the confirmatory factor (Doll et al, 1994) in order to test the satisfaction of the service quality by the user</p>	<p>The methods adopted have proved to be useful in studying the key determinants of any HR system which are: Accessibility, usability and feedbacks.</p>
<b>Security assurance</b>	<p>Davis (1989)</p> <ol style="list-style-type: none"> <li>1. Used TAM to identify the "Perceived usefulness, perceived ease of use, and user acceptance of information technology."</li> <li>2. TAM is also used to identify security concerns of technology users.</li> </ol> <p>Harris et al. (2003) and Ponte etal. (2015) used a Cross-Cultural Comparison method to identify "Privacy and Attitudes</p>	<p>The study will adopt TAM as a way of finding out how the end user (applicants) has adopted the technology.</p> <ul style="list-style-type: none"> <li>- Security concerns are also covered by this model.</li> </ul>	<p>TAM will be able to allow the researcher to identify security concerns of the end users.</p>

	<p>Towards Internet-Based Selection Systems"</p> <p>3. The authors investigated the issues of privacy and trust for those using online recruitment.</p>		
<b><u>External quality</u></b>			
Empowered manager and members team			
Job seeker Trust of E-Recruitment	<p>Borstorff et al. (2006).</p> <p>1. The authors used a Technology Acceptance Model (TAM) to predict jobseekers' attitude, behavioural intentions to use recruitment websites.</p> <p>Marr (2007) used the feedbacks from the end users to determine the behaviour and the trust of the applicants.</p>	<p>TAM will be adopted</p> <p>Also the use of feedbacks to assess behaviour and trust (Marr, 2007)</p>	<p>Behaviours, attitudes of job-seekers or applicants form an essential part of this research.</p> <p>These behaviours can impact on trust.</p>
<b>Organisational Reputation</b>	<p>The company uses its reputation, image, online technology and other methods to attract the attention of potential applicants to apply through the firm's website (Parry, 2006).</p> <p>Parry (2006) and Kwon and Rupp (2013) :</p> <p>1. Measured the link between the organizational image</p>	<p>This study will adopt Parry (2006) techniques to establish the impact of organisational reputation in e-HR</p>	<p>The study aims to link e-recruitment and the organisational reputation.</p>

	<p>and the influence it has to applicants.</p> <p>2. Tested whether the organization reputation matters during application</p>		
<b><u>HR Capability</u></b>			
Balancing current and future capability issues	<p>Marler and Fisher (2013).</p> <p>1. Used "An evidence-based review process of e-HRM and strategic human resource management." to establish the link between e-HRM, HR strategy and HR capability.</p> <p>Miller (2012):</p> <p>1. Measured a link between business goals, training and development budget leading to performance</p> <p>2. Measured engagement; alignment, agility and shared purpose; capability and talent; and performance measures and metrics – that help an organisation to</p>	<p>This study adopts an evidence-based view (Marler and Fisher, 2013) to identify the current and future capability.</p>	<p>The method chosen allows for investigation or an empirical analysis of organisational capabilities.</p>

	maintain its performance		
<b>Talent Management check-up</b>	<p>Buckner (2007):</p> <ol style="list-style-type: none"> <li>Used key factors such as; employee engagement, participation, leadership style, and organizational culture are also important to create a good working environment</li> </ol>	<p>Buckner (2007) offers useful determinants that will be used in this study.</p>	<p>Talent management forms a significant part of this research as it complements the whole process of recruitment and retention through e-hr.</p>
<b>Leadership and management capability</b>	<p>Mullins (2007):</p> <ol style="list-style-type: none"> <li>Analyzed the involvement of top managers to support, train and develop employees' talent to perform to the best of their ability</li> </ol>	<p>A number of factors such as employee training, involvement and talent management (Mullins, 2007) will be adopted</p>	<p>The management of the e-hr technology and the whole process is essential to this research.</p>
<b>Firm Performance</b>	<p>Parry and Tyson (2008).</p> <ol style="list-style-type: none"> <li>Used an analysis of the use and success of Online Recruitment methods in the UK through examining the perceived success of corporate and commercial websites.</li> <li>The authors collected feedbacks after a period of time to assess the contribution of the above to Firm performance.</li> </ol> <p>Boydell (2002):</p> <ol style="list-style-type: none"> <li>Measured the link between e-recruitment</li> </ol>	<p>Dess and Robinson (1984) claim that the ROA will offer a useful tool in measuring performance. Measurements by <u>Chakravarthy (1986)</u> are also very useful (see the 8 determinants below)</p>	<p>While various studies have shown positive relationships between perceptual and objective measures of firm performance (Delaney and Huselid, 1996; Dollinger and Golden, 1992; Powell, 1992), the firm performance measures used in Delaney and Huselid's (1996) study were composed of non-financial (perceived organizational performance) and financial performance (perceived market performance) measures. Since the current</p>

	<p>and organisational performance.</p> <p>2. Tested whether the links between e-HR and career development leading to organisational performance.</p> <p>Hansen and Wernerfelt (1989).</p> <ol style="list-style-type: none"> <li>1. Used the determinants of e-recruitment such as: skills and competence to highlight their contribution in firm performance.</li> <li>2. Using both economic and organisational factors</li> </ol> <p>Dess and Robinson (1984):</p> <ol style="list-style-type: none"> <li>1. Investigated the relationship between objective and subjective types of measures of return on assets (ROA), growth in sales, and “global” performance measures.</li> </ol> <p><u>Chakravarthy (1986)</u> used eight variables including the following (<u>Meglio &amp; Risberg, 2010</u>):</p> <p>(1) Cash flow to total investment (“CFBYIN”), (2) sales to total assets (“SABYTA”), (3) research and development to sales</p>	<p>research focused on firm financial performance, the latter measurement scale for the perceived market performance of the organization relative to the performance of industry competitors over the last 3 years with a Cronbach alpha of over 0.8, was thus adapted for use in this study.</p>
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	(“RDBYSA”), (4) market to book value (“MBYB”), (5) sales per employee (“SABYEM”), (6) debt to equity (“DTBYEQ”), (7) working capital to sales (“WCBYSA”), and (8) dividend payout to net income (“DIVPAY”)		
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#### 4.4.6 Questionnaire layout

According to Sheehan (2001), it is very important to have an idea how to layout the questionnaire in such way to enhance the rate of respondents. The rate of respondents will decrease if the questionnaire is either too long or too short (Edwards et al. 2002). Thus, there is a well-known observation that the ideal length of the questionnaire is between four to eight A4 pages for self-administered questionnaires (Saunders et al., 2014).

The rate of respondents will also be influenced by a covering letter that should be attached to the questionnaire to clarify the aim of the survey (Dillman, 2007). Considering the previous information, the current questionnaire is a close-ended questionnaire of 4 A4 pages and attached with a covering letter (see appendix B). The covering letter proposes to the respondents to identify clearly the aims and objectives of the research and how their answers to the survey will help obtain these aims and objectives. It also reassures them that their answers and information will be used for an academic purpose only and will be treated in a highly universal and ethical standard. The questionnaire is divided into three parts; each part tackles a different phase of variables.

An attractive, easy to understand and easy to complete questionnaire layout plays a crucial role in helping participants to understand the questionnaire content, which will lead to reliable results. To achieve this goal, several procedures were followed in structuring the questionnaire’s layout. For example, simple and clear vocabulary was used to articulate the questions, which were also kept short. The questionnaire was paper based, and printed on a

white paper with no colors or images to avoid distracting the participants. Additionally, items measuring the same construct were grouped together, to ensure smoothness of the answering process. Questionnaires, in general, contain open format questions, closed format questions or both these formats. The open format questions “are questions where the range of possible answers is not suggested in the question and which respondents are expected to answer in their own words” (Brace, 2008, p.55). On the other hand, closed format questions describe “questions with clear and specific predetermined set of answers” (Brace, 2008, p.55). Likert scale questions are the most recognized and used forms of closed format questions (Brace, 2008). Likert scales present “a set of items, composed of approximately an equal number of favourable and unfavourable statements concerning the attitude object, is given to a group of subjects and typically, they are instructed to select one of five or seven responses” (Gliem and Gliem, 2003, p.82).

The present study’s questionnaire consists of closed type of questions mainly. Five point Likert scale questions are utilised to measure the variables that create the model, and precoded questions are used to collect information related to experience with e-recruitment in Saudi Arabia in general, experience with online recruitment, and demographic information like age and gender. Hence, the questionnaire was divided into three sections. Firstly, Section 1 aims to discover internal and external determinants of e-recruitment. These questions aim to obtain information regarding the technology quality, service quality, and security assurance. In addition to information about empowered manager and members’ team, job seeker trusts in e-recruitment, and organizational reputation. Secondly, Section 2 is concerned with human resources capabilities and firm performance.

Lastly, Section 3 was constructed to obtain personal information about respondents such as their gender, academic qualification, income and the type of industry. These questions aim to provide information about the profile of the study sample.

#### **4.4.7 Target population and sampling**

Dillon et al. (1994) and Hair et al. (2014) define a sample as a subgroup of the elements of the population selected for participation in the study; in which sample characteristics are used to make inferences about the population parameters; whilst estimation procedures and tests of hypotheses are the inferences that link sample characteristics and population parameters.

According to Webb (1992), there are no strict rules to follow to clearly define the target population, and the researcher must rely on logic and judgment. Hair et al (2014) further argues that the population should be defined in keeping with the objectives of the study; if the entire population will be sufficiently small, the researcher can include the entire population in the study. This type of research is called a census study because data is gathered on every member of the population (Churchill & Brown, 2007). However, argued by Dillon et al. (1994), the population usually is too large for the researcher to make direct observations of every individual in the population investigating; a small, but carefully chosen sample can be used to represent the population, ideally, the sample corresponds to the larger population on the characteristics of interest. The target population must be defined in terms of elements, sampling units, extent, and time (Webb 1992). Webb (1992) further argues that element: is the object about which or from which the information will be obtained.

The two main sampling techniques are: probability sampling (known, also, as representative sampling) and non-probability sampling (known, also, as judgemental sampling). In probability sampling, the probability, of each case being selected from the entire population, is known and, usually, is the same for all cases. On the other hand, in non-probability sampling, the probability of each case, selected from the entire population, is unknown (Saunders et al., 2012). Moreover, Zikmund (2000) stated that there are some criteria, such as research questions and objectives and research method, which could be used to choose between probability sampling and non-probability sampling. Additionally, probability sampling is associated most frequently with survey-based research, whereas non-probability sampling is used more commonly in case study research (Saunders et al., 2014). However, the probability sampling technique is preferred in research because it assists the researcher to maximize the validity of generalization (external validity), and eliminates bias from the case

selection process (Vogt, 2007). This study chose the probability sampling because, as mentioned above, it is used commonly in survey-based research.

According to Saunders et al. (2014), the procedure of probability sampling comprises of the following steps: identify a suitable sampling frame based on the research objectives and questions; decide on a sample size; and select the suitable sampling technique.

#### **4.4.7.1 Sampling frame**

For any probability sample, the sampling frame is a complete list of all the cases in the population from which your sample will be drawn (Saunders et al., 2009). This study is focused on some companies in Saudi Arabia as follow:

**Table 4.2: Sample frame**

Company name	Source	Number of employees
<b><u>STC - Saudi Telecom Company</u></b>	<a href="http://www.stc.com.sa">http://www.stc.com.sa</a>	
<ul style="list-style-type: none"> <li>• First Telecommunication Company in Saudi Arabia.</li> <li>• listed in the Saudi stock market</li> <li>• Biggest Telecommunication Company in Saudi Arabia.</li> <li>• The highest number of employees of the telecommunications company.</li> <li>• Leading in the telecommunications company in Saudi Arabia</li> </ul>		17000
<b><u>Saudi airlines</u></b>	<a href="http://www.saudiairlines.com/portal/site/saudia/template.WELCOME">http://www.saudiairlines.com/portal/site/saudia/template.WELCOME</a>	
<ul style="list-style-type: none"> <li>• First airlines Company in Saudi Arabia.</li> <li>• listed in the Saudi stock market</li> <li>• Biggest Airlines Company in Saudi Arabia.</li> <li>• The highest number of employees of the airlines company.</li> <li>• Leading in the airlines company in Saudi Arabia</li> </ul>		30000
<b><u>Saudi electricity company</u></b>	<a href="https://www.se.com.sa/en-us/Pages/home.aspx">https://www.se.com.sa/en-us/Pages/home.aspx</a>	
<ul style="list-style-type: none"> <li>• Leading company in Saudi Arabia</li> <li>• Has a high number of employees</li> <li>• listed in the Saudi stock market</li> <li>• This company is the only electricity operator in Saudi Arabia</li> </ul>		37200
<b><u>Alinma Bank</u></b>	<a href="http://www.alinmainvestment.com">www.alinmainvestment.com</a>	
<ul style="list-style-type: none"> <li>• Leading in the banks in Saudi Arabia</li> </ul>		

<ul style="list-style-type: none"> <li>• The highest number of employees of the banks</li> <li>• newest bank in Saudi Arabia</li> <li>• listed in the Saudi stock market</li> </ul>		
		1834
<b>Sabic company (Biochemical company )</b> <ul style="list-style-type: none"> <li>• Leading Biochemical company in Saudi Arabia</li> <li>• listed in the Saudi stock market</li> <li>• Has a high number of employees</li> <li>• Internal and external dealings with the world.</li> </ul>	<a href="https://www.sabic.com/corporate/en/">https://www.sabic.com/corporate/en/</a>	
		35000
<b>Alqassim University</b> <ul style="list-style-type: none"> <li>• One of the biggest Universities in Saudi Arabia.</li> <li>• Business school got international accreditation AACSB.</li> <li>• The first university in Saudi established the e-recruitment</li> </ul>	<a href="http://www.qu.edu.sa/en/Pages/Home.aspx">http://www.qu.edu.sa/en/Pages/Home.aspx</a>	
		2199

#### 4.4.7.2 Sample size

Determining the research sample size is really imperative in building the number of samples which have to be neither small, to avoid the risk of insufficient information, nor large to avoid the risk of being ineffective (Scheaffer et al., 1986). Hence, from this point, the study to be employed is Structural Equation Modelling (SEM) to examine the research's proposed hypotheses. The SEM model fit indices mainly based on the sample size and it helps to support the appropriate statistical power and accuracy of the parameter estimates in an SEM examination (Brown, 2006).

The adequate sample size to validate a structural model is debatable. However, it is recommended that the minimum sample size in SEM should not be less than 200 participants (Barrett, 2007). Taking a ratio of sample size to number of parameters is a famous method to determine the adequate sample size when using the SEM method. According to this method different acceptable ratios were proposed. For example Tanaka (1987) proposed a ratio of 20 to 1 but this ratio is considered unrealistically high (Kenny, 2014). A more realistic ratio of 5 to 1 is considered the most common ratio (Bentler and Chou, 1987). However, a satisfactory model was obtained with a lower ratio of 3 to 1 (Bagozzi and Yi, 2012). The present study will use a 3 to 1 ratio to determine the adequate sample size.

The determination of the sample size is important in building the number of sample which has to be neither low, to avoid the risk of inadequate information, nor high to avoid the risk of being inefficient (Zain, 1995). The choice of sample size relies on several factors such as the size of the entire population; the level of margin of error required, the level of certainty; and the types of statistical techniques used to analyses the data (Saunders et al., 2014).

Typically, the research is worked to a 95% level of certainty. This suggests that, if the sample size of study selected 100 cases, at least ninety-five of these samples would be sure to represent the features of the entire population. Regarding the margin of error, it describes the researcher's accuracy in estimating the population. In business and management studies, most researchers use a margin of plus or minus 3 to 5% of the true values. According to Saunders et al. (2014), the sample size required ( $n^a$ ) can be calculated by using the following equation:

$$n^a = \frac{n \times \%}{re \%}$$

Where

$n^a$  is the sample size required,

$n$  is the adjusted minimum (or minimum) sample size

$re$  is the estimated response rate.

If the selected margin of error was to be 5% and the total population was between 100,000-1,000,000, the minimum sample size was 383-384. Assuming that this study used an online survey and hand-delivered to collect data sample's response rate was 50%, the required sample size was calculated using the following equation:

$$n^a = \frac{384 \times 100}{50} = 768 \text{ subjects}$$

#### **4.4.7.3 Sampling Technique**

Dillon et al. (1994) define a sample as a subgroup of the elements of the population selected for participation in the study; in which sample characteristics are used to make inferences about the population parameters; whilst estimation procedures and tests of hypotheses are the inferences that link sample characteristics and population parameters.

According to Webb (1992), there are no strict rules to follow to clearly define the target population, and the researcher must rely on logic and judgment. Webb (1992) further argues that the population should be defined in keeping with the objectives of the study; if the entire population will be sufficiently small, the researcher can include the entire population in the study. This type of research is called a census study because data is gathered on every member of the population (Churchill and Brown, 2007). However, argued by Dillon et al. (1994), the population usually is too large for the researcher to make direct observations of every individual in the population investigating; a small, but carefully chosen sample can be used to represent the population, ideally, the sample corresponds to the larger population on the characteristic(s) of interest. Malhotra (2004) specified series of nonprobability and probability sampling techniques. Sampling methods are classified as either probability or nonprobability, according to Malhotra (2004), non-probability sampling techniques include convenience sampling, judgmental sampling, quota sampling and snowball sampling; whilst probability sampling techniques include simple random sampling, systematic sampling, stratified sampling, cluster sampling etc.

##### **4.4.7.3.1 Nonprobability Sampling**

In nonprobability sampling, population elements are selected on the basis of their availability (e. g., because they volunteered) or because of the researcher's personal judgment that they are representative (Churchill and Brown, 2007). The consequence is that an unknown portion of the population is excluded (e. g., those who did not volunteer). The nonprobability sampling method includes convenience sampling, judgment sampling, quota sampling, and snowball sampling (Malhotra, 2004). Webb (1992) argues that convenience sampling is one

of the most common types of nonprobability sample, in which the researcher uses whatever individuals are available rather than selecting from the entire population. The advantage of probability sampling is that sampling error can be calculated, however, in nonprobability sampling the degree to which the sample differs from the population remains unknown (Webb 1992).

#### **4.4.7.3.1.1 Convenience Sampling**

According to Churchill and Brown (2007), convenience sampling attempts to obtain a sample of convenient elements, in which the selection of sampling units is left primary to the interviewer; respondents are selected because they happen to be in the right place at the right time. Dillon et al. (1994) argue that use of students is example for convenience sampling, others include, for example, church groups, and members of social organizations; mall intercept interviews without qualifying the respondents; department stores using charge account lists; tear-out questionnaire included in magazine; and "people on the street" interviews. Convenience sampling is the least expensive and least time consuming of the all sampling techniques, and sampling units are accessible, easy to measure, and cooperative (Webb 1992). Convenience samples are not recommended for causal research, but they can be used in exploratory research for generating ideas, insights, or hypotheses, they also can be used in focus groups, pretesting questionnaires, or pilot studies (Churchill and Brown, 2007). Apart from these advantages, this form of sampling has serious limitations. Many potential sources of selection bias are present, including respondent self-selection (Malhotra, 2004). Convenience samples are not representative of any definable population (Webb 1992). Hence, it is not theoretically meaningful to generalize to any population from a convenience sample, and convenience samples are not appropriate for marketing research projects involving population inferences (Churchill and Brown, 2007).

#### **4.4.7.3.1.2 Judgmental Sampling**

Malhotra, (2004) argues that judgmental (or purposive) sampling is a commonly used form of nonprobability sampling method, in which the population elements are selected based on the judgment of the researcher. Malhotra, (2004) further argues that the researcher, exercising judgmental or expertise, choose the elements to be included in the sample, because he or she believes that they are representative of the population of interest or are otherwise appropriate. The advantages of judgmental sampling are its cost effectiveness, convenience, and quick (Webb 1992). Barnett (1991) argues that judgmental sampling permits the auditor to reapply

evaluation judgments based on evidence in addition to the sample evidence. Barnett (1991) further argues that judgmental sampling does not require the auditor to be definite as to materiality and risk, and allows use of subjective judgment. In judgmental sampling sample selection does not require random selection (Fowler, 1984).

#### **4.4.7.3.1.3 Quota Sampling**

Quota sampling may be viewed as two-stage restricted judgmental sampling, of which the first stage is to develop control categories, or quotas, of population elements, whilst the second stage is to select sample elements based on convenience or judgment (Schuman and Kalton, 1985). Schuman and Kalton (1985) further argue that in order to develop the quotas in the first stage, the researcher lists relevant control characteristics and determines the distribution of these characteristics in the target population; the relevant control characteristics may include gender, age, race, etc. are identified on the basis of judgment. Churchill and Brown (2007) argue that using quota sampling enables the research to ensure that the composition of the sample is the same as the composition of the population with respect to the characteristics of interest. The advantages of quota sampling are the lower costs and greater convenience to the researcher in selecting elements for each quota, and less time consuming (Barnett 1991). The disadvantages are not as representative of the population as a whole as other sampling methods, and because the sample is non-random it is impossible to assess the possible sampling error (Fowler, 1984). Nevertheless, Webb (1992) argues that quota sampling is able to provide results close to those for conventional probability sampling.

#### **4.4.7.3.1.4 Snowball Sampling**

Dillon et al. (1994) argue that, in snowball sampling, an initial group of respondents is selected, usually at random, after being interviewed, these respondents are asked to identify others who belong to the target population of interest. This process may be carried out in waves by obtaining referrals from referrals, thus leading to a snowballing effect (Dillon et al. 1994).

#### **4.4.7.3.2 Probability Sampling**

Webb (1992) argues that in probability samples, sample units are selected by chance, each element (e. g., persons, households) in the population has a fixed probabilistic opportunity of being included in the sample. Probability methods include random sampling, systematic sampling, stratified sampling, and cluster sampling (Malhotra, 2004). Simple Random Sampling (SRS) is a method of drawing a portion or sample of a universe so that each

member of the population has an equal and fair chance of being selected with or without replacement (Schuman and Kalton, 1985). In random procedures every member of a population has an equal chance of being selected, members with certain distinguishing characteristics will, if selected, probably be counterbalanced in the long run by the selection of other members with the "opposite" quantity or quality, in proportion to the composition of the population (Schuman and Kalton, 1985).

In systematic sampling, the sample is obtained by selecting one unit on a random basis and choosing additional elementary units at evenly spaced intervals until the desired number of units is obtained (Malhotra, 2004). Schuman and Kalton (1985) argue that stratified sampling is commonly used probability method that used to identify the characteristics of a population the researchers want to ensure will be represented in the sample; then draw a specified number of subjects from each dimension of the stratum which is represented in exact proportion to their frequency in the population. Webb (1992) argues that, in cluster sampling, the target population is first divided into mutually exclusive and collectively exhaustive subpopulations, or clusters, and then a random sample of clusters is selected bases on a probability sampling techniques.

Having selected an appropriate sampling frame and identified the necessary sample size, the study needed to choose the most suitable sampling technique in order to gain a probability sample. The following techniques can be used to choose a probability sample: stratified; cluster sampling; and random sample. A stratified sample is suitable when the sampling frame contains two groups. Cluster sampling is similar to stratified sampling because the study needs to divide the population into groups (Henry, 1990). According to the random sample, it is appropriate for a geographically dispersed area if the study uses postal or online questionnaires techniques to collect the data.

In addition, the selection of the probability sampling technique depends on the study's questions and objectives; the nature of the sampling frame; the required sample size; and the technique used to collect the data (Saunders et al., 2009). This study used a technique of simple random sampling to obtain a comprehensive sample. Based on this technique and in order to contact them, this study selected randomly 768 subjects.

#### **4.4.7.4 Testing for Non-Response Bias**

In any survey research, it is normal to find less than a 100% response; this produces the potential for non-response bias. Non-response bias happens when there is a difference between the respondents' and non-respondents' answers (Lambert & Harrington, 1990). For this study, the response rate was 55 % (418/768). According to Saunders et al. (2009), this was an acceptable rate. The problem of non-response bias related to reducing the generalisation of the respondent sample's results to the whole population. When non-response bias occurs, there is an unrepresentative sample. Therefore, the researcher should address the issue through testing for non-response bias. Armstrong and Overton, (1977) recommended that, if there were significant differences between the early and late returned surveys, it was expected that on the assumption that individuals, who responded late were more similar to non-respondents, this survey had a non-response bias.

Wu et al (2008) examined non-response bias using t-tests, which aimed to determine the extent to which the differences between the early respondents and the late ones were significant. T-tests were performed to compare the medium of early and late respondents. There was no consensus around the number of items, which should be tested. Lambert and Harrington (1990) chose 28 of 56 original questions; whilst (Yaghi, 2006) selected randomly 20 of the 74 items. In order to conduct t-tests and according to Yaghi (2006), the researcher used fifty early respondents and the same number of late respondents (representing non-responding) using twenty-eight randomly selected items (Kaleka, 2012). The obtained results (attached in Appendix C) illustrated that the significance value for Levene's test is higher than .05 and hence, it can be assumed that both groups share the same variances. It can be noted that the t-values "Sig. (2-tailed)" are non-significant (p values greater than 0.05) for almost all items assuming that there is no significant difference between the two groups. Therefore, it can be concluded that both samples used in the present study are indeed representative of the whole population. These results do not rule out the possibility of non-response bias, but they suggest that non-response may not be a problem.

#### **4.4.7.5 Missing Data and Outliers**

Missing data happens when a respondent either deliberately or accidentally fails to answer a question (Field, 2009). In the Warp PLS-SEM software, the missing values are automatically replaced by the mean of the other values of that particular factor (Kock, 2013). However,

Hair et al. (2014) suggested that if an observation is missing more than 15% of the values, the researcher should consider the removal of this observation. In fact, replacing the missing values with means will reduce the variability of the data and hence reduces the likelihood to gain meaningful and significant data. Therefore, with the present data the researcher has removed all observations with missing values higher than 15%. Kock (2013) acknowledged that outliers may significantly affect the shape of the relationship. The author stressed that, in extreme cases, one outlier can change the sign of a linear relationship (from positive to negative or vice versa). Therefore, some suggest the removal of outliers from the data set (Field, 2009; Zikmund et al., 2012; Saunders et al., 2014). However, Kock (2013) argued that the deletion of outliers is often a mistake as these can reveal the true nature of the relationship; the authors added that these should be removed only if they are due to measurement error. According to this author, using the WarpPLS-SEM software allows the researcher to deal with outliers effectively without removing them from the data set. In fact, the author explained that the software may run the analysis by ranking the data and hence the value distances that typify the outliers are substantially reduced without decreasing the sample size. As for the resampling algorithms, the researcher has chosen to use the new “stable” algorithm provided by the software. It is acknowledged that like the “Jackknifing” method, this new algorithm tends to deal effectively with small samples by generating low standard errors and medium to high effect sizes which as a result would increase the statistical power. Additionally, using the stable algorithm provides p values that approximate the most stable p value given by the software’s other resampling methods (Jackknifing, bootstrapping and blindfolding). The stable algorithm could be seen as a combination of the traditional resampling methods cited above (Kock, 2013).

#### **4.4.7.6 Common Method Bias**

Common method bias occurs when data is collected using the same method, inadvertently introducing some unexpected biasing effect that changes how participant respond to the measurement instrument. Addressing common method bias requires two strategies. The first strategy is to anticipate biasing influences such as asking potentially identifying information or by inadvertently signalling an outcome bias to the participants. These types of issues are mitigated by providing assurances of steps to anonymize data and by reassuring participants that there are no right or wrong answers. In this study, some procedural remedies as

recommended by Podsakoff, et al (2003) were used. The second strategy is to test for a biasing effect in the data collected after the data collection is complete.

Common method bias assumes that a single factor explains the majority of variance. Researchers rely on the same respondent who provides information about all the variables (Podsakoff et al., 2012). Common method bias is a problem because it is considered to be a main source of measurement error, which has a negative effect on the validity of the measure (Podsakoff et al., 2003). Due to the method bias, correlations are inflated (Meade et al., 2007).

This study had to investigate this method because of using one questionnaire to measure all constructs including internal determinants, external determinants, e-recruitment, Human resources capabilities, and firm performance. To address the chance that a common method bias may still be present in the instrument, two statistical tests were undertaken. The first test was Harman's single factor test. The procedure for this test involves an unrotated exploratory factor analysis with the factors being constrained to one factor. If the single factor accounts for more than 50% of the variance then a common method bias is present. When this test was conducted on the research data only 33% of the variance was explained. This value supports the argument that no common method bias was present. A second analysis was conducted involving the examination of the full collinearity VIFs, where a score of 3.3 or lower suggest no common method bias (Kock & Lynn, 2012). The data in this research scored 2.437. Given the strong results from both tests, it can be concluded that common method bias did not impact this investigation.

#### **4.4.8 Research Ethics**

When conducting a research study several important ethical considerations arise and it is vital to the researcher to take these concerns into account. These considerations protect both the researcher and its subjects (Myers, 2013). Research ethics delineate what is and is not permissible to do when undertaking research (Kalof et al., 2008). Research ethics are defined as the consideration of moral ethics and values in every stage of a research study (McNabb, 2013). Similarly, Saunders et al. (2012) defined the research ethics as the adoption of an

appropriate behaviour in relation to the rights of the individuals or groups being studied or affected by the study.

McNabb (2013) has identified four issues related to research ethics that should be followed in all stages of the research, from gathering the data to reporting the findings. These were truthfulness, thoroughness, objectivity and relevance. By truthfulness it is meant that researchers must not lie, deceive or use fraud. Thoroughness implies that researchers should be thorough in the research process and do not use shortcuts. Objectivity implies that researchers should not be biased and this is particularly important for positivistic studies, and relevance suggests the conducted research should be purposeful and relevant to the literature. Accordingly, the researcher has made every effort to preserve these ideals. In fact, the researcher has spent around eleven months conducting a thorough and extensive reading of journal articles and books related to business ethics. This has allowed the researcher to identify gaps in the literature and therefore develop purposeful research questions.

In addition, when publishing and communicating the research findings, additional ethical principles were considered. McNabb (2013) and Kalof et al. (2008) acknowledged that the researcher had to protect the right of the participants by protecting their privacy, ensuring their anonymity and respecting their confidentiality. In this respect, to protect privacy and ensure anonymity, the researcher guaranteed that the participants' identity could not be deciphered in the published findings. Moreover, when describing the sample of the study, the researcher focuses on the participants' characteristics rather than their identity (McNabb, 2013). To respect confidentiality, the researcher removed all identifying information about the participants from research records and reports. All these ethical considerations were detailed in the email invitations and the covering letter to reassure the participants.

Furthermore, Kalof et al. (2008) and Myers (2013) have added another ethical principle called "informer consent", this means that the participants should undertake the survey voluntarily and the researcher should clearly explain what they are being asked to do, the purpose of the study and the risks and benefits of participation. Hence in this study, the participation was voluntary, and the purpose, risks and benefits of the survey participation were clearly highlighted in the email invitations and questionnaires. Ultimately, the researcher acknowledged the limitations and restrictions of the study to enable the readers to know how much credibility the study should be provided (McNabb, 2013). Overall, Saunders et al. (2012) claimed that the premise behind all these ethical consideration is the avoidance

of harm. This was carefully taken into account in the present study by providing a clear, explicit and precise covering letter highlighting all the aforementioned ethical.

#### **4.4.9. Statistical Techniques**

Data analysis is used to convert information from questionnaires or other sources into conclusions and reports (Jacob, 1984). One of the most difficult parts of the research processes is choosing the correct statistical technique to analyse the data obtained (Malhotra, 2004). Although most statistics referenced sources provide information of how to calculate a correlation coefficient or perform a t-test, they typically do not provide background knowledge of how to choose which is appropriate to address particular research questions (Creswell, 2003). It is important to have some basic understanding of the different statistics, the type of question they addressed and their underlying assumptions and requirements to solve appropriate questions presented in the research (Creswell, 2003). In this section, the following analysis methods have been discussed (1) descriptive analysis; (2) reliability analysis, (3) factor analysis, including an evaluation of which method is more suitable for this research EFA or CFA; (4) an evaluation of suitability and superiority of statistical techniques for analysing the difference between groups including: t-tests, ANOVA, and MANOVA; (5) evaluation of suitability of the statistical methods for exploring the strength of the relationship between variables: cross-tabulations, regression, canonical correlation, or structural equation modelling (SEM).

##### **4.4.9.1 Descriptive Analysis**

Descriptive analysis could be able to provide some basic description of the data obtained from this study. Descriptive data analysis can provide, for example, a brief view of respondents' socio-demographical characteristics, and it can assist the author and other readers to assess the validity of the data. This may be done by counting the frequency distribution of answers (i.e. the number of respondents who give the same response to a particular question). The calculation of frequency distribution would show how many respondents fall into each income category. In contrast to a frequency distribution, a single number or percentage can also be used to describe responses to a question. A frequency

distribution may be preferred to a single number when more detailed information is needed (Creswell, 2003). A frequency distribution may show, however, that respondents were evenly divided between those who are very interested and those who are very uninterested. The author proposed that a brief descriptive analysis of the respondents' socio-economical and educational background is necessary for this study.

Descriptive data is discussed for the main questionnaire questions. These variables: Internal determinants of e-recruitment, which, in this study, consist of three main variables, which are (technology quality, service quality, and security assurance). It also includes the External determinants of e-recruitment, which consist of the main six latent variables which are (empowered manager and member team, content of an implementation plan for e-recruitment, HR and IT collaboration in e-recruitment, job seeker trust in e-recruitment, organizational reputation, decentralization of selection decision, and government objectives). HRM capabilities, which consist of three main variables which are (Aligning capability and talent with a future focus; Balancing current and future capability issues; and Talent management checkup). Then, the descriptive statistics for the demographic information is discussed. Aligning capability and talent with a future focus.

In general, the employees in Saudi Arabia representative's responses average on the technology quality Construct (TQ) are mostly 'Neutral (3.31). For service quality construct (SQ) are mostly strongly agree (4.43). For e-recruitment construct (EREQ) are mostly strongly agree (4.46). For HRM capabilities construct (HRC) are mostly strongly agree (4.52). For firm performance construct (PER) are mostly strongly agree (4.58).

#### **4.4.9.2 Reliability Analysis**

The next stage examines the reliability of the data obtained. Reliability refers to the extent to which a scale produces consistent results if repeated measurements are made (Malhotra, 2004). The reliability of a scale indicates how free it is from random error (Briggs and Cheek, 1986). Systematic sources of error due to not have an adverse impact on reliability, because they affect the measurement in a constant way and do not lead to inconsistency (Malhotra, 2004). In contrast, random error produces inconsistency, leading to lower reliability (Creswell, 2003). Two frequently used indicators of a scale's reliability are test-retest reliability (also referred to as 'temporal stability') and internal consistency (Malhotra 2004). The test-retest reliability of a scale is assessed by administering it to the same people on two different occasions, and calculating the correlation between the two scores obtained (Creswell, 2003). High test-retest correlations indicate a more reliable scale. The second

aspect of reliability that can be assessed is internal consistency (Malhotra, 2004). This is the degree to which the items that make up the scale are all measuring the same underlying attribute. Internal consistency can be measured in a number of ways. The most commonly used statistic is Cronbach's coefficient alpha (Creswell, 2003). This statistic provides an indication of the average correlation among all of the items that make up the scale. Values range from 0 to 1, with higher values indicating greater reliability, a value of 0.6 or less generally indicates unsatisfactory internal consistency reliability (Malhotra 2004). While different levels of reliability are required, depending on the nature and purpose of the scale, Nunnally (1978) recommends a minimum level of .7. Cronbach alpha values are dependent on the number of items in this scale. When there are a small number of items in the scale (fewer than ten), Cronbach alpha values can be quite small. In this situation it may be better to calculate and report the mean inter-item correlation for the items. Optimal mean inter-item correlation values range from .2 to .4 (as recommended by Briggs and Cheek, 1986). Internal consistency reliability analysis were commonly used in consumer behaviour studies, especially in the field of online shopping, significant amount of researchers determined the reliability of their data using Cronbach's alpha (e.g. Sorce et al. (2005), Kim and Park (2005), Daholakia and Uusitalo (2002), and Shim et al. (2001)).

#### **4.4.9.3 Exploratory Factor Analysis**

Exploratory Factor Analysis (EFA) is a general name denoting a class of procedures primarily used for data reduction and summarization (Malhotra, 2004). Exploratory factor analysis allows researchers to condense a large set of variables or scale items down to a smaller, more manageable number of dimensions or factors. Exploratory factor analysis takes a large set of variables and looks for a way that the data may be 'reduced' or summarised using a smaller set of factors or components (Pallant, 2005).

It does this by summarising the underlying patterns of correlation and looking for groups of closely related or not related items. This technique is often used when developing scales and measures, to identify the underlying structure. In marketing research, there may be a large number of variables, most of which are correlated and which must be reduced to a manageable level. Relationships among sets of many interrelated variables are examined and represented in terms of a few underlying factors (Creswell, 2003). Exploratory factor analysis is independence technique in that an entire set of interdependent relationships is examined.

According to Malhotra (2004), exploratory factor analysis is used in the following circumstances: (1) to identify underlying dimensions, or factors, that explain the correlations among a set of variables; (2) to identify a new, smaller set of uncorrelated variables to replace the original set of correlation variables in subsequent multivariate analysis; (3) to identify a smaller set of salient variables from a larger set in subsequent multivariate analysis.

The key statistics associated with exploratory factors analysis are Bartlett's test of sphericity, communality, eigenvalues, factor loadings, and Kaiser-Meyer-Olkin (KMO). Bartlett's test of sphericity is a test statistics used to examine the hypothesis that the variables are uncorrelated in the population; in other words, the population correlation matrix is an identity matrix; each variables correlates perfectly itself ( $r = 1$ ) but has no correlation with the other variables ( $r = 0$ ). A correlation matrix is a lower triangle matrix showing the simple correlations,  $r$ , between all possible pairs of variables included in the analysis. Communality is the amount of variances a variable shares with all the other variables being considered: and this is also the proportion of variance explained by the common factors (Pallant, 2005). The eigenvalue represents the total variance explained by each factor. Factor loadings are simple correlations between the variables and the factors. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is an index used to examine the appropriateness of factor analysis; high values (between 0.5 and 1.0) indicate factor analysis is appropriate; values below 0.5 imply that factor analysis may not be appropriate (Pallant, 2005).

#### **4.4.9.4 Confirmatory Factor Analysis**

Confirmatory factor analysis seeks to determine if the number of factors and the loading of measured (indicator) variables on them conform to what is expected on the basis of pre-established theory (Tabacknick and Fidell, 2007). Confirmatory factor analysis is appropriately used when the researcher has some knowledge of the underlying latent variable structure. For example, hedonic motivation of online may be measured by asking respondent to evaluate their perception of online shopping on series of items, such as their evaluation of internet technology and buying power etc. CFA allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists (Byrne, 2001).

Based on knowledge of the theory, empirical research, or both, the researcher postulates relations between the observed measures and the underlying factors a priori and then test this hypothesized structure statistically (Schumacker, 2002). Because the structural portion of a full structural model involves relations among only latent variables, and the primary concern in working with a full model is to access the extent to which these relations are valid, it is critical that the measurement of each latent variable is psychometrically sound (Byrne, 2001). Thus, an important preliminary step in the analysis of full latent variable models is to test first for the validity of the measurement model before making any attempt to evaluate the structural model. Accordingly, confirmatory factor analysis procedures are used in testing the validity of the indicator variables (Byrne, 2001). The measurement model is evaluated like other normal SEM model, using goodness of fit measures. There is no point in proceeding to the structural model until the measurement of model is valid.

Once it is known that the measurement model is operating adequately, one can then have more confidence in findings related to the assessment of the hypothesized structural model. Kline (1998), Schumacker (2002) suggests that it is essential to test the pure measurement model underlying a full structural model first, and if the fit of the measurement is model is found acceptable, then to proceed to the second step of testing the structural model by comparing its fit with that of different structural models. Goodness of fit indexes examine significance of the difference between estimated population covariance matrix (generated by SEM) and the original sample matrix (via hypothesis testing), ideally, the difference is very small and not statistically significant, this will be represented as good fit in goodness of fit indices, and vice versa. CFA examines the validity of the relationship between the observed variables and the underlying latent variables, it is an important preliminary step in the analysis of full latent variable models is to test first for the validity of the measurement model before making any attempt to evaluate the structural model. Good fit in goodness of fit indices represent the indicator variables are reasonable valid. If the fit of the measurement is model is found acceptable, then to proceed to the second step of testing the structural model (Schumacker, 2002).

#### **4.4.9.5 Confirmatory vs. Exploratory Factor Analysis**

As it had already been discussed in the previous two sections, exploratory factor analysis summarises a large set of variables using a smaller set of factors or components (Pallant, 2005) by summarising the underlying patterns of correlation and looking for groups of

closely related or not related items, to identify the underlying structure. EFA is more suitable for studies that the researchers do not have sufficient understanding of the underlying structure of the variables investigated. However, for this research, the new research framework had already been developed in the previous chapter; the author had some, although limited, basic understandings of the underlying relationships between factor that affecting online consumer behaviour. Therefore, confirmatory factor analysis (CFA) is more suitable for this study to determine whether the number of factors and the loading of measured (indicator) variables on them conform to what is expected on the basis of pre-established theory.

#### **4.4.9.6 Exploring Differences between Groups**

There is a selection of statistics techniques that can be used to explore differences between groups. Most of these analysis methods involve comparing the mean score for each group on one or more dependent variable (Malhotra, 2004).

##### **4.4.9.6.1 T-Tests**

T tests are parametric tests that provide suggestion for making investigation about the means values of parent populations (Malhotra, 2004). Creswell (2003) argue that t-tests can be used to explore difference between groups, and Malhotra (2004) argue that it is a univariate hypothesis test using the t distribution. T-tests are preferred to be used when researchers have two groups or two sets of data, and wish to compare the mean scores on some continuous variable (Malhotra, 2004). There are two main types of t-tests, paired sample t-test and independent sample t-test. Paired sample t-test are used when researchers are interested in changes in the scores for subjects tested at Time 1, and then again at Time 2 (Creswell, 2003), with the presumption that the samples are 'related' because they are the same people tested each time. Independent sample t-tests are more suitable to be used when researchers have two different (independent) groups of people (i. e. males and females), and researchers are interested in comparing their mean scores (Malhotra, 2004). One sample t-test investigates a single variable against a known or given standard (Creswell, 2003). Creswell (2003) further argue that the statements about a single variable against a given standard can be translated to null hypotheses that can be tested using a one-sample t test or z test. In the situation of testing t value for a single mean, the researcher is interesting in testing whether the population mean conforms to a given hypothesis (Malhotra, 2004). Independent sample t-

tests are suitable for the situation when there are two different (independent) groups of respondents, and researchers are interested in comparing their mean scores (Creswell, 2003).

For example, the users and nonusers of the internet differ in terms of their attitude towards online shopping, the high-income consumers spend more online than low-income consumers. If the Sig. value (2-tailed) of t-test for equality of means is larger equal or less than .05, then there is a significant difference in the mean scores on the dependent variable for of the two groups (Creswell, 2003). If the Sig. value oft-test for equality of means is above .05, there is no significant difference between two groups (Creswell, 2003).

In paired sample t-test, the observations are paired that the two sets of observations relate to the same respondents (Malhotra, 2004). Creswell (2003) argue that paired samples t test is a test for differences in the means of paired samples. In many research applications, the observations for two groups are not selected from independent samples; rather, the observations relate to pair samples in that the two sets of observations relate to the same respondents (Malhotra. 2004).

#### **4.4.9.6.2 One Way Analysis of Variance (ANOVA) and Covariance (ANCOVA)**

One way analysis of variance is similar to a t-test, but is used when research have two or more groups and wish to compare their mean scores on a continuous variable (Malhotra, 2004). A one-way analysis of variance (ANOVA) will examine whether groups differ, but it would not calculate the significances (Pallant, 2005). Two-way analysis of variance allows researcher to test the impact of two independent variables on one dependent variable. Analysis of covariance (ANCOVA) is used when researcher wants to statistically control for the possible effects of an additional variable (Creswell, 2003).

#### **4.4.9.6.3 Multivariate Analysis of Variance**

Multivariate analysis of variance (MANOVA) is used when researcher wants to compare groups on a number of different, but related, dependent variables (Tabachnick and Fidell, 2007). Researchers such as Pallant (2005) and Tabachnick and Fidell (2007) argue that multivariate analysis of variance (MANOVA) can be considered as an extension of analysis of variance (ANOVA, which tests whether mean differences among groups on a single dependent variable are likely to have occurred by chance) to a situation in which there are several dependent variables. MANOVA compares groups and tests whether mean differences

among groups on a combination of dependent variables are likely to have taken place by chance (Tabachnick and Fidell]. 2007). Pallant (2005), and Tabachnick and Fidell (2007) argue that in MANOVA a new summary dependent variable (which is a linear combination each of the dependent variable) is created to be tested in analysis of variance. They further noted that MANOVA not only can address whether there is a significant difference between this composite dependent variable, it also able to provide the univariate results for each of the dependent variables separately. There are several advantage of using MANOVA, the first, and the most important benefit of using MANOVA is its ability to measure a number of dependent variables instead of only one in ANOVA (Tabachnick and Fidell, 2007), the researcher improves the opportunity of discovering what it is that changes as a result of different treatments and their interactions (Pallant, 2005). A second advantage of MANOVA over a series of ANOVAs is that, argued by Pallant (2005), it 'controls or adjusts' for the increased risk of Type 1 error.

MANOVA can aid in investigating questions such as: do males and female differ in terms of online purchase intention (which contains several variables)? Are males more likely to search price and product information online? Apart from these advantages, argued by Pallant (2005), before proceeding with the MANOVA analysis it is essential to make sure the data confirm the assumption of MANOVA. First of all, at minimum, the sample size to perform a MANOVA needs to have more cases in each cell than the dependent variables (Pallant, 2005). Secondly, although the significance tests of the MANOVA are based on the multivariate normal distribution, Tabachnick and Fidell (2007) state that, in practice it is reasonably robust to modest violations of normality (multivariate normality can be conducted by examining Mahalanobis distances). Thirdly, suggested by Pallant (2005) it is necessary (via generating scatterplots) to check for univariate outliers (for each of the dependent variable separately) and multivariate outliers because MANOVA is very sensitive to outliers (e. g. very high on one variable, but very low on another).

#### **4.4.9.6.4 Comparison of MANOVA, ANOVA and T-Test**

As have already been discussed in the previous three sections, t-test is a univariate hypothesis test using the t-distribution; it can be used to explore difference between groups. Similar to a t-test, one way analysis of variance (ANOVA) is suitable for the situation when researchers have two or more groups and wish to compare their mean scores on a continuous variable (Malhotra, 2004). Whilst, multivariate analysis of variance (MANOVA) is preferred to be

used when researcher wants to compare groups on a number of different, but related, dependent variables. As discussed in the scaled item developing section in the questionnaire design, and in order to confirm the research objectives of this study, the author argues that multivariate analysis of variance (MANOVA) is more suitable to analysis the data obtained, since each of the factors affecting online consumer behaviour is observed via several variables.

#### **4.4.9.7 Exploring Relationships**

There are a number of different techniques that can be used to explore the strength of the relationship between variables. These include: chi-square test, Pearson correlation, Spearman's rank order correlation ( $\rho$ ), multiple regression, canonical correlation, and structural equation modelling (SEM), as discussed in the following subsections.

##### **4.4.9.7.1 Chi-Square**

Chi-square test for independence is used to determine whether two categorical variables are related (Creswell, 2003). It compares the frequency of cases found in the various categories of one variable across the different categories of another variable (Malhotra, 2004). For example: is the proportion of e-shoppers to non-e-shoppers the same for males and female?

Creswell (2003) argues that the assumption of chi-square concerning the "minimum expected cell frequency" should be 5 or greater (or at least 80% of the cells have expected frequencies of 5 or more), assumptions are violated when more than 20.0% of the cells have expected count less than 5. Malhotra (2004) argues that if each variable has only two categories, continuity correction should be used; otherwise the Pearson Chi-Square result should be used. The Pearson Chi-Square value and/or Continuity Correlation value are only significant the Asymp. Sig. (2-sided) value needs to be .05 or smaller, and vice versa (Creswell, 2003).

##### **4.4.9.7.2 Pearson Correlation**

Pearson correlation is capable to provide indications of both the direction (positive or negative) and the strength of the relationship, in which, argued by Creswell (2003), a positive correlation indicates that as one variable increase, so does the other; a negative correlation indicates that as one variable increases, the other decreases. This is confirmed by Malhotra (2004) who argues that correlation coefficients such as Pearson's  $r$  provide a numerical summary of the direction and the strength of the linear relationship between two variables.

Pearson correlation coefficients ( $r$ ) can range from -1 to +1. The sign indicates whether there is a positive correlation (as one variable increases, so too does the other) or a negative correlation (as one increase, the other decreases) (Creswell, 2003). The size of the absolute value (ignoring the sign) provides information on the strength of the relationship (Malhotra, 2004). P value ( $p < .05$ ) is the indicator of whether the results are significant, if  $p < .05$  the results are significant, and vice versa (Creswell, 2003).

#### **4.4.9.7.3 Spearman's Rank Order Correlation**

Spearman's Rank Order Correlation ( $\rho$ ) is a measurement of the relationship (association) between two ordinal (rank order) variables (Malhotra, 2004). It is the non-parametric method to Pearson's product moment correlation coefficient, which is used to calculate the strength of the relationship between two continuous variables (Malhotra, 2004). P (Sig. ) value ( $p < .05$ ) is the indicator of whether the results are significant, if  $p < .05$  the results are significant, and vice versa (Creswell, 2003). Spearman's Rank Order Correlation ( $\rho$ ) value can also range from -1 to +1 (Creswell, 2003); the sign indicates whether there is a positive correlation (as one variable increases, so too does the other) or a negative correlation (as one increases, the other decreases). The same as the Pearson's product moment correlation ( $r$ ), the size of the absolute value of Spearman's Rank Order Correlation (ignoring the sign) provides information on the strength of the relationship (Creswell, 2003).

#### **4.4.9.7.4 Multiple Regression**

Multiple regression is a more sophisticated extension of correlation and is suitable to be used when researchers want to explore the predictive ability of a set of independent variables on one continuous dependent measure (Malhotra, 2004). Different types of multiple regression allow researchers to compare the predictive ability of particular independent variables and to find the best set of variable to predict a dependent variable (Creswell, 2003).

#### **4.4.9.7.5 Canonical Correlation Analysis**

Canonical correlation is a multivariate technique used to examine the relationship between two groups of variables (Tabachnick and Fidell, 2001). For example, it's able to test the relationships between a variety of attitudinal variables and online shopping motivations. A canonical correlation is the correlation of two canonical (latent) variables, one representing a set of independent variables, the other a set of dependent variables (Dunteman, 1989); each set may be considered a latent variable based on measured indicator variables in its set.

Dunteman (1989) further argue that the canonical correlation is optimized such that the linear correlation between the two latent variables is maximized. Whereas multiple regressions are used for many-to-one relationships, canonical correlation is used for many-to-many relationships (Pallant, 2005). Tabachnick and Fidell (2001) argue that the purpose of canonical correlation is to explain the relation of the two sets of variables. Not to model the individual variables. Dunteman (1989) argues that, for each canonical variate it can be assessed how strongly it is related to measured variables in its own set, or the set for the other canonical variate. Wilks's lambda is commonly used to test the significance of canonical correlation, if  $p < .05$ , the two sets of variables are significantly associated by canonical correlation (Tabachnick and Fidell, 2001).

Canonical correlation is a form of correlation relating two sets of variables and there may be more than one significant dimension (more than one canonical correlation) in a canonical coefficient, with each significant canonical correlation representing an orthogonally separate pattern of relationships between the two latent variables (Dunteman, 1989). The first canonical correlation is always the one which explains most of the relationship (Tabachnick and Fidell, 2001). The canonical correlations are interpreted the same as Pearson's r: their square is the percent of variance in one set of variables explained by the other set along the dimension represented by the given canonical correlation (Dunteman, 1989). Dunteman (1989) further suggest that a dimension will be of interest if its canonical correlation is 30 or higher. Canonical coefficient, also called the canonical function coefficient or the canonical weight. Tabachnick and Fidell (2001) argue canonical coefficients are the standardized weights in the linear equation of variables which creates the canonical variables; the canonical coefficients can be used to assess the relative importance of individual variables' contributions to a given canonical correlation. The ratio of canonical weights is the ratio of the contribution of the variable to the given canonical correlation, controlling for other variables in the equation (Dunteman, 1989). A structure correlation (also called canonical factor loadings) is the correlation of a canonical variable with an original variable in its set (Tabachnick and Fidell, 2001). It is the correlation of canonical variable scores for a given canonical variable with the standardized scores of an original input variable.

#### **4.4.10 Structural Equation Modelling (SEM)**

Structural equation modelling (SEM) is: “a statistical methodology that takes a confirmatory (i.e. hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon” (Byrne 2012, p.3). Structural equation modelling (SEM) is a part of the existing family of multivariate statistical techniques. SEM is a generic tool to provide “a broad, integrative function conveying the synergy and complementarity among many different statistical methods (Bagozzi and Yi 2012, p.10).” Regarding statistical techniques, there are so-called “first generation statistical methods” such as correlations analysis, canonical correlation analysis, exploratory factor analysis, multiple regression and ANOVA and “second generation statistical methods” such as SEMs: confirmatory factor analysis and structural equation models (Bagozzi and Yi 2012, p.10). The characters of structural equation modelling (SEM) are like combining that of factor analysis, canonical correlation and multiple regressions (Tabachnick and Fidell 2007). Similarly, factor analysis, some of the variables can be latent, whereas others are directly observed. Similarly canonical correlation, there can be many independent and dependent variables (Tabachnick and Fidell 2007). Additionally, from the point of view that the research goal may be to prove the relationship among many variables, structural equation modelling can be the comparison with multiple regressions (Tabachnick and Fidell 2007).

Structural equation modelling (SEM) technique can be defined, according to Byrne (2010: 3), as “a statistical methodology that takes a confirmatory (i.e., hypothesis-testing) approach to the analysis of a structural theory on a given phenomenon”. This technique is employed to test a hypothesized model which describes the relationships between latent variables (outer and inner models) (Schumacker and Lomax, 2004). Thus, the SEM method has been considered to be one of the most essential mechanisms of applied multivariate statistical analyses and has been used by many studies in different fields, such as marketing, economics, education, medicine, and a diversity of other social and behavioural researchers (Pugesek et al., 2003).

Many previous studies were employed SEM analysis in recruitment such as Baranoff et al., 2007, Jamshidinavid et al., 2012, Cuong and Jian, 2014, Phan and Zhou, 2014, and Abdallah and Hilu, 2015. In the current thesis, SEM is employed to examine the effect of internal and

external determinants of e-recruitment on human resource capabilities and firm performance. Literature review has indicated that there are two types of statistical methodologies which estimate SEM with latent variables including measurement models: covariance-based (CB-SEM) and partial least squares path modelling (PLS-PM) or variance-based SEM (Ringle et al., 2009).

As mentioned previously, the present study is using the SEM approach to test the proposed hypotheses and to examine the relationships between the constructs of the proposed model. There are different multivariate techniques available — notably linear regressions — which represent robust tools to test different relationships between constructs. However, the inability of regression to test across different outcome variables and cover the entire theory at one time is deemed a major limitation. The SEM technique, on the other hand, has allowed researchers to overcome this limitation and allowed the examination of a series of dependence relationships concurrently (Hair et al., 2013). As a result the SEM technique is becoming a popular and recommended approach in testing theories (Byrne, 2013). Testing hypotheses using the SEM technique requires an emphasis on the relationship between constructs rather than the relationship between latent constructs and measured variables. It also includes validating the model by examining its overall fit and the structural parameter estimates (Byrne, 2013). This shift of focus describes the move from a measurement model to the structural model. The main focus when using SEM to test hypothesis is directed to examining the proposed model's ability to explain the data (i.e., overall model fit) as a measure of acceptance of the proposed model, and on structural parameter estimates and their associated t-values (Hair et al, 2013).

Lacobucci et al., (2007) discuss the evidence about why SEM perform is better than regressions. "The structural model describes three types of relationships in one set of multivariate regression equations: the relationships among factors, the relationships among observed variables, and the relationship between factors and observed variables that are not

factor indicator (Muthén and Muthén, 2010 p.52).” Therefore, Structural Equation Modelling (SEM) has a number of attractive features. According to Bagozzi and Yi (2012, p.12), “SEM use provides integrative function, helps researchers to be more precise in their specification of hypotheses and operationalization of constructs and takes into account reliability of measures in tests of hypotheses in ways going beyond the averaging of multi-measures of constructs.” Moreover, they recommend that: “SEM is useful in experimental or survey research, cross-sectional or longitudinal studies, measurement or hypothesis testing endeavours, within or across groups and institutional or cultural contexts.” (Bagozzi and Yi 2012, p.12) Additionally, the framework analysed in structural equation modelling (SEM) involves two conceptually distinct models such as a measurement model and a linear structural equation model.

A measurement model that relates observed variables to unmeasured constructs is estimated, whereas a linear structural equation model that related latent variables to each other is specified (Muthén and Muthén 2010). Furthermore, structural equation modelling has some advantages in comparison with the older generation of multivariate procedures. First, it takes a confirmatory, rather than exploratory approach, to analyse the data, in particular, for inferential purposes whereas most other multivariate procedures are essentially descriptive by nature (Byrne 2012). Second, SEM provides explicit estimates of these error variance parameters whereas most other multivariate methods such as those rooted in regression or general linear model are tantamount to ignoring error when there is error in the explanatory variables, ultimately, to serious inaccuracies. Third, in SEM, we can incorporate both unobserved (i.e., latent) and observed variables. Finally, by SEM, modelling multivariate relations or estimating point and interval indirect effects can be analysed (Byrne 2012). Based on these advantages, Structural Equation Modelling (SEM) has become a popular methodology for non-experimental research where methods for testing theories are not well developed and ethical considerations make experimental design unfeasible (Bentler 1993). SEM can be utilized very effectively to address numerous research problems involving non-experimental research.

SEM allows the researcher to construct unobservable latent variables (LVs) which cannot be directly measured. Latent variables (LVs) however are responsible to determine the correlation among the manifest variables. Observable and empirically measurable indicator variables known as manifest variables (MVs) were used to estimate LVs in the proposed model Hair et al., (2010). Indicators can be classified into two groups: (a) reflective

indicators which depends on the construct and (b) formative which causes the formation of or changes in an unobservable variable (Haenlein & Kaplan, 2004). Many studies have employed the SEM method to examine their hypothesized models (Wu et al., 2007).

According to Anderson and Gerbing (1988), SEM provides “a comprehensive means for assessing and modifying theoretical models”. SEM is more of a confirmatory technique but it also can be used for exploratory purposes. Confirmatory factor analysis (CFA) requires one to specify which variables are associated with each construct. It involves testing, and potentially confirming a theory. CFA is a tool which enables the researcher to either ‘confirm’ or ‘reject’ pre-conceived theory.

As pointed out by Aibinu and Al-Lawati (2010), first generation techniques such as factor analysis (FA), multiple regression analysis (MRA) and path analysis (PA) are not suitable as a method of analysis for the following reasons:

- MRA only handles the relationships between single dependent variables and many independent variables. Further, both MRA and PA only deal with manifest or observable variables and not with latent or unobservable variables.
- FA although could detect underlying latent variables from observed variables, it could not provide further information on the relationships between latent variables.

Further, SEM can simultaneously assess the measurement model (relationships between constructs and measures) and the path model (relationship between one construct and another) to test theoretical relationships.

#### **4.4.6 Partial Least Squares**

The data will be analysed employing Structural Equation Modelling (SEM), a second-generation multivariate statistical technique used to estimate the parameters of a structural model. The main goal of SEM is to test hypothesized models that depict relationships among variables (Schumacker & Lomax, 2004). SEM has become popular among researchers because it takes into account measurement error when statistically analysing data. SEM can be either variance-based, like those used in Partial Least Squares (PLS) analysis, or covariance-based, such as those used in LISREL.

Covariance-based SEM techniques are not appropriate for some types of studies because they have restrictions. Unlike variance-based SEM, which does not require a sound theory base, covariance-based SEM techniques support only confirmatory types of research, as opposed to exploratory ones. Other restrictions imposed by covariance-based SEM techniques include requirements for normal distribution, large sample size, usually more than 100 cases, and

only reflective variables (Gefen, et al., 2000). Reflective latent variables refer to when indicators of a latent variable “are viewed as affected by the same underlying concept” (Chin , 1998).

According to Urbach and Ahleman (2010), PLS can be used either for theory confirmation (confirmatory factor analysis) or theory development (exploratory factor analysis).

The following are the features of PLS (Gefen et al., 2000):

- PLS makes no distributional assumption. PLS avoid the assumptions that observations follows a specific distributional pattern and that they must be independently distributed.
- Relatively small sample size. A Monte Carlo simulation performed by Chien et. al. (2003) indicated that PLS could be performed with a sample size as low as 50.
- Unlike covariance-based SEM, variance-based SEM yields robust results even in the presence of small samples and multivariate deviations from normality.

Partial Least Squares (PLS), a second-generation multivariate variance-based technique used to estimate the parameters of a structural model, was developed by Wold (1975) for situations where data cannot meet the restrictive assumptions of covariance-based SEM techniques (Fornell & Bookstein, 1982). PLS maximizes the explained variance of dependent variables by disaggregating the overall causal model into partial equations, which are solved simultaneously (Chin, 1998). Variance-based SEM is a multivariate analysis technique that shares similarities with covariance-based SEM but differs from it in that it builds on techniques, such as resampling, which do not require parametric assumptions to be met (Diaconis & Efron, 1983; Rencher, 1998). Variance-based SEM is more suitable when the requirement of multivariate normality is not met in a dataset (Chin, 1998).

PLS is preferred by researchers for several flexibilities it offers. PLS can be used for theory development, as it tests and validates exploratory models, does not require a large sample size, can estimate complex models with several latent and manifest variables, does not require normality, is suitable for prediction-oriented research, and can deal with reflective, as well as formative, measurement models (Gefen, et al., 2000; Henseler, et al., 2009).

Several SEM-PLS software programmes exist, from which SmartPLS, PLS Graph and WarpPLS. In this study, the researcher used the WarpPLS 3.0. It is a MATLAB based programme which conducts non-linear regression (Kock, 2013). Unlike the Smart and Graph PLS programmes which only run linear regressions, the WarpPLS perform a warping at the path coefficient level using a distinctive robust path analysis technique. In a study comparing linear and non-linear regression programmes, Brewster (2011) acknowledged that non-linear

programmes more effectively captures the reality when studying management and business issues. The author explained that very few management phenomena exist in a straight line cause and effect correlation. Hence, using a non-linear regression is more likely to spot relationships that could not be identified applying a linear regression.

We analysed the survey data using partial least squares (PLS 4.0) with a two-step analytic approach. First, the measurement model was evaluated to assess the validity and reliability of the measures. Second, the structural model was evaluated to assess the strength of the hypothesized links among the variables. The psychometric properties of all scales were assessed within the context of the structural model through an assessment of discriminant validity and reliability.

## **4.5 Piloting the Survey**

Zikmund et al., (2012) defined the pilot study as a small-scale research that gathers data from a smaller number of respondents with the same characteristics of those that will be investigated in the full study. Such testing is useful to ensure the clarity of the questions and to refine the research instruments (Kalof et al., 2008). Testing the questionnaire is useful to establish the validity of the instruments used to measure the variables, testing the validity ensures that the questionnaire can be administered without variability to the experimental group (Creswell, 2009). It was stated that the pilot survey can be seen as a rehearsal of the main questionnaire (Kothari, 2004).

### **4.5.1 Content Validity**

The first step in pre-testing the questionnaire was to evaluate its content. Initially, the first draft of the questionnaire was checked by seven doctorate research students in Business Management, three academics (including my supervisors) and two managers. This was necessary to ensure that (1) the questions were clear and with no grammatical and spelling mistakes, (2) the questions had the meaning they intended to have, (3) the covering letter was explicit, brief and accurate and (4) the questionnaire was not exhaustive. After a week time, all the comments were received; these were mainly pointing the following issues:

- The questionnaire was found to be lengthy and exhaustive.
- Some questions needed more precisions and some items were thought to be repetitive.

- The covering letter was found to be too long and containing redundant information.

After addressing all these comments, a revised version of the questionnaire was sent to be completed by a small number of respondents selected among the population. The pre-tests were conducted with a number of managers ranging from 10 to 20.

To guarantee sufficient validity, it was decided to translate the form before proceeding to pilot it on employees. Harkness (2003) stated that the most key reason for translating questionnaires is to provide an instrument that is not accessible in the language required in the field. Thus, in this study, it was essential to translate the questionnaire, because it targeted the Kingdom of Saudi Arabia participants. Hence, the study developed a questionnaire in Arabic to provide clarity to the participants.

#### **4.5.1.1 Questionnaire translation**

It is important for the researcher in international research that the translated questionnaire's questions/items have the same meaning as the original questionnaire. In this study the back-translation technique was used. In this technique, back translation refers to the procedure according to which a translator understands, interprets and translates a document previously translated into another language back to the source language.

Translating any document from one language to another is indeed difficult, as it needs to be done very carefully because the interpretation of one word is different from country to country. In addition to this, there are many words that could have the same meaning. A weak translator would lead the respondents to a poor understanding of the issue and, therefore, the results may not be reliable or accurate. From this perspective, many researchers have been exposed to how a good translation of any document should be conducted. Among these researchers was Usunier (1998), who argues that the translation should be a direct translation, back translation, parallel translation or a mixed translation. Usunier (1998) proposed that in direct translation, the original questionnaire would be translated directly to the target questionnaire, and that would be all, while in back translation, the original questionnaire would be translated to the target questionnaire and vice-versa, after which both newly sourced questionnaires would be compared to the original questionnaire and the needful steps to create the final questionnaire would be taken. In contrast to the previous translation technique, both parallel and mixed translation techniques use two or more translators to

conduct such a process. Thus, in the parallel translation, the original questionnaire will be translated by two translators or more to the target questionnaire. These target questionnaires then should then be compared to develop the final questionnaire, while in the mixed translation, we use the back translation techniques by two translators or more, after which a comparison of their new original questionnaire will be used to get the final version (Usunier, 1998).

In this respect, Brislin (1986) argued that the most common technique used to guarantee reliability and accuracy of the questionnaire translation in cross-cultural study is back translation. Hence, in this research the back translation technique was used. The original questionnaire (English version) was translated to the target questionnaire (Arabic version). Then, the translated version has been re-translated into the original questionnaire by two expert translators. After that, another two professional doctors who specialized in HR and used to conduct their work in both languages compared the two sourced versions to the original questionnaire. They then did the needful adjustments to elicit the final version. Moreover, the researcher got help from a friend whose mother tongue is Arabic and conducted his PhD in Linguistics (English) to do the final check. He confirmed that the final version was sufficient enough and did not need any further adjustment.

#### **4.5.2 Construct Validity and Reliability**

Bryman (2012: 169) defined the reliability as the “consistency of a measure of a concept”, it involves the stability of the measure over time (external reliability) and its internal consistency with other measures in the same questionnaire (internal reliability). Turning to the validity, it addresses the issue of whether the measure accurately reflects the concept that it is claimed to measure (Cooper & Schindler, 2003; Collis & Hussey, 2009). There are a number of statistical techniques which allow the researcher to test both the reliability and validity of the measures used in the study; these will be applied in detail during the measurement model assessment conducted in the analysis chapter. However, at this stage of the research process, the author ensured the validity of the measures and constructs by relying on instruments that have already been used in a same context and published in highly ranked journals. In this respect, Bryman (2003: 53) points that “the increasing use of measures with relatively well-known validity and reliability is a step in the right direction”. Hence, almost all the indicators of the study have been used and tested in past studies.

Turning to the construct reliability, at the pilot study stage, the researcher can check whether the items for a specific construct are all measuring the same attribute (the extent of their

correlation with each other). The most commonly used measure to assess the reliability is the Cronbach's alpha coefficient. Its values vary on a scale from 0 to 1, with higher values indicating an enhanced reliability. It is acknowledged that 0.7 represents a satisfactory reliability (Pallant, 2007). Field (2009) also confirmed that Cronbach's alpha is the most important coefficient to check the constructs' reliability and reported the same threshold. Moreover, both authors have added that if the Cronbach's alpha is less than 0.7 then the Corrected Item-Total Correlation values shown in the Item-Total Statistics should also be checked and would ideally be more than 0.3.

Therefore, the initial questionnaire was delivered to and collected from 100 respondents in order to obtain some assessment related to the questions' reliability and validity. 90 usable questionnaires were returned (a response rate of 90 %.). This was an acceptable response rate according to Saunders et al. (2009) who recommended that a 30% response rate was reasonable for questionnaires delivered and collected by a person.

The following tables show each variable used in the study with its Cronbach's alpha and its Corrected Item-Total Correlation values.

**Table 4.3. Cronbach's Alpha of the variables**

Variables	Cronbach's Alpha
TQ	0.850
SQ	0.904
SA	0.847
EMP	0.794
PLA	0.884
HRM	0.869
TRU	0.945
REP	0.941
DEC	0.794
GOV	0.881
E-REC	0.976
BAL	0.759
TAL	0.773
ALG	0.857
LED	0.943
PER	0.845

Reliability analysis, in the current study, was implemented on six latent variables: internal determinants, external determinants (e-recruitment management support strength), external determinants (applicant-organization relationship), e-recruitment, human resource capability, and firm performance. Cronbach's alpha, as indicated above, can be seen as an index of the internal consistency (construct reliability) of a set of constructs (Everitt and Skrondal, 2006).

The internal consistency of the six constructs is highly reliable. It can be established that these six latent variables employed in the study research model are highly reliable. There was a good distribution of the participants' answers across all the questionnaire questions, indicating that the respondents could differentiate between the six concepts (latent variables).

As it could be seen in Table 4.3, results from the construct reliability test for the study's variables illustrate that overall (with few exceptions) there is sufficient correlation among the items measuring each construct.

### **Technology quality (TQ)**

Technology quality can be characterized by 4 main items adapted from Alshehri et al. (2012) (see Appendix B). The Cronbach's alpha for the PCF latent variable is 0.850. This Cronbach's alpha is very good and above the advocated threshold of 0.7. Therefore, it can be concluded that the TQ latent variable has sufficient reliability (see Table 4.3).

Table 4.4 TQ Construct Item-Total Statistics after Items Removed.

<b>1. Technology quality (TQ)</b>	<b>Corrected Item-Total Correlation</b>	<b>Cronbach's Alpha</b>
TQ1	.721	0.850
TQ2	.694	
TQ3	.702	
TQ4	.739	

Table 4.4 shows that the corrected item-total correlations for the TQ construct's four items range from 0.694 to 0.739, indicating that no indicator is redundant.

### **Service quality (SQ)**

Service quality can be characterized by 6 main items adapted from Doll et al. (1994) and Bernardo et al. (2012). (see Appendix B). The Cronbach's alpha for the SQ latent variable is 0.904. This Cronbach's alpha is very good and above the advocated threshold of 0.7. Therefore, it can be concluded that the SQ latent variable has sufficient reliability (see Table 4.5).

Table 4.5 SQ Construct Item-Total Statistics after Items Removed.

2-Service Quality	Corrected Item-Total Correlation	Cronbach's Alpha
SQ1	0.608	0.904
SQ2	0.749	
SQ3	0.802	
SQ4	0.621	
SQ5	0.598	
SQ6	0.740	

Table 4.5 shows that the corrected item-total correlations for the SQ construct's six items range from 0.598 to 0.749, indicating that no indicator is redundant.

### Security assurance (SA)

Service assurance can be characterized by 3 main items adapted from Doll et al. (1994) and Davis (1989) (See Appendix B). The Cronbach's alpha for the SA latent variable is 0.847. This Cronbach's alpha is very good and above the advocated threshold of 0.7. Therefore, it can be concluded that the SA latent variable has sufficient reliability (see Table 4.6).

Table 4.6 SA Construct Item-Total Statistics after Items Removed.

3- Security assurance (SA)	Corrected Item-Total Correlation	Cronbach's Alpha
SA1	0.850	0.847
SA2	0.719	
SA3	0.735	

Table 4.6 shows that the corrected item-total correlations for the SA construct's three items range from 0.719 to 0.850, indicating that no indicator is redundant.

### **Empowered manager and members team (EMP)**

Empowered manager and members' team can be characterized by 4 main items adapted from Marler and Fisher (2013 (see Appendix B). The Cronbach's alpha for the PCF latent variable is 0.794. This Cronbach's alpha is very good and above the advocated threshold of 0.7. Therefore, it can be concluded that the EMP latent variable has sufficient reliability (see Table 4.7).

Table 4.7 EMP Construct Item-Total Statistics after Items Removed.

<b>4- Empowered manager and members team (EMP)</b>	<b>Corrected Item-Total Correlation</b>	<b>Cronbach's Alpha</b>
EMP1	0.847	0.794
EMP2	0.704	
EMP3	0.827	
EMP4	0.756	

Table 4.7 shows that the corrected item-total correlations for the EMP construct's four items range from 0.704 to 0.847, indicating that no indicator is redundant.

### **Job seeker Trust of E- Recruitment (TRU)**

Job seeker Trust of E- Recruitment can be characterized by 4 main items adapted from Borstorff et al. (2006) (see Appendix B). The Cronbach's alpha for the TRU latent variable is 0.945. This Cronbach's alpha is very good and above the advocated threshold of 0.7. Therefore, it can be concluded that the TRU latent variable has sufficient reliability (see Table 4.8).

Table 4.8 TRU Construct Item-Total Statistics after Items Removed.

<b>5- Job seeker Trust of E-Recruitment (TRU)</b>	<b>Corrected Item-Total Correlation</b>	<b>Cronbach's Alpha</b>
TRU1	0.736	0.945
TRU2	0.695	
TRU3	0.893	
TRU4	0.857	

Table 4.8 shows that the corrected item-total correlations for the TRU construct's four items range from 0.695 to 0.893, indicating that no indicator is redundant.

## **4.6 Summary**

This chapter justified using quantitative analyses to answer the research questions and to test the proposed hypotheses. Measurement scales for each construct have been identified, based on well-known previously tested scales. A questionnaire survey will be used to collect the data from respondents in the Saudi Arabia. Random sampling techniques will be used to select the subjects. Finally, statistical techniques have been presented.

# **CHAPTER FIVE: DATA ANALYSIS AND RESULTS**

## **5.1 Introduction**

This study, so far, has discussed the relevant literature concerning the theories and previous studies related to e-recruitment, internal and external determinants of e-recruitment, HRM capabilities, and firm performance and then the study has identified the gap in the literature reviewed.

In this chapter, the analyses and findings of the quantitative data collection is discussed. It begins with the descriptive statistics for the main survey and each latent variable of the main model of this study followed by the descriptive statistics of the personal information. Then, the discriminant and convergent validity and latent variable consistency of the measurement

models are established. It also concludes with an analysis and presentation of the study results of structural relationship models.

After collecting data by the questionnaire, this chapter presents quantitative statistics in order to analyse data and test hypotheses. This chapter starts by the descriptive statistics (section 5.2). It also evaluates the measurement model by investigating confirmatory factor analysis. Finally, it ends to test the research hypotheses (structure model) by using warp PLS (section 5.3).

## **5.2 Descriptive Statistics**

Table 5.1 presents the correlations, means, and standard deviations for the indicators of all latent variables. Calculated means indicated that organisation reputation has higher mean in the sample ( $M=4.74$ ) with standard deviation ( $SD= 1.28$ ).The mean for Balancing current and future capability issues was the lowest ( $M= 2.83$ ) with standard deviation ( $SD= 1.96$ ). Furthermore, table 5.2 shows the mean and standard deviation of the study variables.

***Table 5.1: Indicator Correlation Matrix***

	TQ	SQ	SA	EMP	PLA	HRM	TRU	REP	DEC	GOV	E-REC1	E-REC2	E-REC3	BAL	TAL	ALG	LED	PER1	PER2	PER3	PER4	
TQ		1																				
SQ	0.565		1																			
SA	0.702	0.406		1																		
EMP	0.038	0.408	0.704		1																	
PLA	0.346	0.604	0.308	0.683		1																
HRM	0.059	0.045	0.803	0.702	0.652		1															
TRU	0.345	0.356	0.346	0.409	0.234	0.546		1														
REP	0.092	0.302	0.406	0.343	0.305	0.483	0.467		1													
DEC	0.305	0.045	0.006	0.308	0.409	0.482	0.301	0.609		1												
GOV	0.028	0.034	0.045	0.093	0.301	0.021	0.512	0.108	0.409		1											
E-REC1	0.261	0.037	0.382	0.267	0.367	0.028	0.182	0.627	0.029	0.207		1										
E-REC2	0.036	0.378	0.738	0.389	0.037	0.267	0.092	0.182	0.362	0.267	0.208		1									
E-REC3	0.185	0.092	0.526	0.278	0.527	0.278	0.178	0.027	0.261	0.198	0.016	0.516		1								
BAL	0.348	0.023	0.094	0.056	0.456	0.345	0.451	0.023	0.485	0.743	0.372	0.359	0.291		1							
TAL	0.006	0.042	0.045	0.409	0.412	0.304	0.402	0.401	0.465	0.313	0.029	0.019	0.257	0.473		1						
ALG	0.001	0.023	0.036	0.008	0.006	0.453	0.023	0.021	0.046	0.009	0.452	0.268	0.092	0.409	0.582		1					
LED	0.023	0.004	0.463	0.432	0.032	0.208	0.034	0.004	0.456	0.039	0.283	0.256	0.718	0.002	0.207	0.684		1				
PER1	0.041	0.234	0.394	0.403	0.346	0.342	0.034	0.119	0.198	0.411	0.028	0.281	0.367	0.005	0.023	0.403	0.345		1			
PER2	0.004	0.121	0.305	0.201	0.202	0.341	0.321	0.341	0.439	0.302	0.178	0.276	0.003	0.211	0.022	0.004	0.302	0.563		1		
PER3	0.235	0.029	0.321	0.483	0.321	0.034	0.092	0.235	0.204	0.113	0.367	0.127	0.178	0.049	0.002	0.403	0.004	0.405	0.394		1	
PER4	0.012	0.029	0.304	0.405	0.309	0.301	0.034	0.341	0.457	0.412	0.232	0.028	0.367	0.004	0.003	0.006	0.009	0.237	0.231	0.442		
Mean	4.45	4.18	3.48	4.07	3.95	2.8	4.06	4.74	3.52	2.98	3.21				2.83	4.05	3.62	4.03	3.73	4.02	3.86	2.99
SD	1.39	1.24	1.65	1.22	1.94	1.07	1.52	1.28	1.8	1.27	1.27				1.96	1.22	1.65	1.61	1.44	1.53	1.34	1.65

**Table 5.2: Latent Variables Means and Standard Deviation**

Variables	Mean	SD
TQ	4.82	0.92
SQ	4.72	1.19
SA	3.36	1.83
EMP	4.39	1.16
PLA	3.29	1.89
HRM	4.30	0.97
TRU	3.80	1.29
REP	4.29	0.86
DEC	3.92	1.28
GOV	4.19	1.09
E-REC	3.82	1.78
BAL	4.32	0.82
TAL	3.46	1.02
ALG	3.28	1.29
LED	4.18	1.29
PER	3.92	1.82

**Notes:**

**TQ** = Technology Quality; **SQ**= Service Quality; **SA** = Security Assurance; **EMP** = Empowered manager and members team; **PLA**= Content of a plan for implementation of e-recruitment; **HRM**= HRM and IT collaboration in e-recruitment; **TRU**= Job seeker Trust of E- Recruitment; **REP**= Organisational Reputation; **DEC**= Decentralisation of selection decision; **GOV**= Government objectives; **E-REC**= E-recruitment; **BAL**= Balancing current and future capability issues; **TAL**= Talent management check-up; **ALG**= Aligning capability and talent with a future focus; **LED**= Leadership and management capability; **PER**= Firm Performance.

### 5.3 Descriptive Data Findings for the Personal Information

This section discusses the descriptive statistics for the demographic information, which include: the respondent's gender, age, marital status, educational level, and works experience (see Table 5.3). It shows that there were 237 male (56.7%) and the rest of respondent were 181 female (43.3%).

**Table 5.3. The Sampling Profile**

Variable	Category	n	%
<b>Gender</b>	Male	237	56.7
	Female	181	43.3
<b>Age</b>	18 – 30 years	41	5.0
	31 – 40 years	274	65.5
	41 – 50 years	73	17.4
	51 – 60 years	30	7.1
	More than 60 years	0	0.0
<b>Marital Status</b>	Single	27	6.5
	Married	368	88.0
	Divorced	23	5.5
<b>Education</b>	High school and lower	29	6.9
	College- University	246	59.0
	Bachelor	106	25.3
	Master-PhD degree	28	6.7
	Other	9	2.1
<b>Work Experience</b>	Less than 2 years	66	15.8
	3 – 5 years	274	65.5
	6 – 10 years	68	16.2
	More than 10 years	10	2.5

In terms of age, Table 5.3 indicates that more than the half of respondents (274 – 65.5%) were from 31-40 years old. However, there are no respondents (0.0%) more than 60 years old. Furthermore, table 5.3 shows that two thirds (368) of respondents were married (88.0%), while the rest of respondents, 50 of individual investors (12.0%) were single.

According to the educational level of the respondents, more than half of the respondents had graduated from College-University (246 – 59.0% of individual investors) and only 37 – 8.8 of respondents claimed that they held a postgraduate degree. Table 5.3 shows that about a half of respondents (274 – 65.5%) have a work experience of 3-5 years. Followed by 68 – 16.2% have a work experience of 6 – 10 years. However, only 66 – 15.8% of respondents have less than 2 years' experience.

## **5.4 Model Assessment**

The evaluation of a conceptual framework using PLS analysis contains two steps. The first step includes the evaluation of the measurement (outer) model. The second step involves the evaluation of the structural (inner). The current study employed Partial Least Squared (PLS) which produced a measurement model and paths analysis. PLS structural equation modelling analysis is divided into the following two parts: the measurement model recognizes the relationship between the observed variables and their latent while the structural model is concerned with the relationships between the latent variables.

### **5.4.1 Measurement Model**

A measurement model is employed to evaluate individual, construct reliability, convergent and discriminant validity to discover the extent to which the measures have adequate internal consistency. In this study, the researcher used the analysis provided in WarpPLS 5.0 (Kock, 2015). The algorithm used was Warp3 PLS regression. The re-sampling method was Stable3. The number of cases (rows) in the model data was 418. The number of latent variables in the model was 5.

To fulfil the multivariate normality criteria, tests of skewness, kurtosis, and Mahalanobis distance statistics were conducted as illustrated in Appendix D. The results of these tests indicate that the current study has not any problem related to normality. Moreover, the current study has not any problem related to multicollinearity where the values of variance inflation factors (VIF) for each construct under 3.0.

#### **5.3.1.1 Individual Item Reliability**

The researcher evaluated the individual item reliability through combined loadings and cross loadings. The loadings were from a structure matrix (un-rotated), which included Pearson correlations between indicators and latent variables. The cross-loadings were from a pattern matrix (rotated) whereas cross loading contained all the 18 observed items; this was loaded on the specified latent variables. These values were always between -1 and 1 (Kock, 2013). Hair et al. (2010) recommended that the loadings ought to be 0.50 or above and values related to the loadings should be lower than 0.05. Tables 5.4, 5.5, 5.6 and 5.7 show that, compared to other latent variables, the factor loadings loaded higher on their theoretical specific latent

variable. With the exception of some items, which were omitted, the loading all items exceeded 0.50 ( $p<0.001$ ). These results indicated that these measurement items were satisfied according to these criteria and they had individual item reliability.

**Table 5.4: Loadings and cross-loadings for latent variables**

Items	TQ	SQ	SA	EMP	PLA	HRM	TRU	REP	DEC	GOV	E-REC	BAL	TAL	ALG	LED	PER	P Value
<b>TQ1</b>	<b>(0.874)</b>	0.054	-0.381	0.090	0.341	0.430	0.491	0.023	0.304	0.344	0.349	0.483	0.049	0.485	0.539	0.085	<0.001
<b>TQ2</b>	<b>(0.908)</b>	0.201	0.322	0.034	0.289	0.049	0.201	0.129	0.594	0.039	0.495	0.394	0.539	0.293	0.053	0.489	<0.001
<b>TQ3</b>	<b>(0.843)</b>	0.341	0.309	0.213	0.029	0.198	0.290	0.348	0.438	0.003	0.005	0.049	0.192	0.489	0.389	0.510	<0.001
<b>SQ1</b>	0.154	<b>(0.923)</b>	-0.319	0.103	0.218	0.004	0.483	0.192	0.432	0.349	0.560	0.004	0.285	0.310	0.048	0.049	<0.001
<b>SQ2</b>	0.246	<b>(0.813)</b>	0.003	0.008	0.342	0.454	0.229	0.432	0.039	0.402	0.304	0.340	0.583	0.389	0.589	0.392	<0.001
<b>SQ3</b>	0.466	<b>(0.793)</b>	0.308	0.109	0.038	0.129	0.003	0.438	0.003	0.049	0.584	0.129	0.382	0.202	0.693	0.293	<0.001
<b>SA1</b>	0.359	0.547	<b>(0.930)</b>	0.006	0.328	0.472	0.349	0.342	0.394	0.192	0.302	0.048	0.283	0.003	0.384	0.321	<0.001
<b>SA2</b>	-0.004	0.401	<b>(0.838)</b>	-0.243	0.473	0.210	0.549	0.543	0.023	0.304	0.203	0.592	0.582	0.483	0.129	0.219	<0.001
<b>SA3</b>	0.143	0.577	<b>(0.909)</b>	-0.063	0.320	0.491	0.394	0.604	0.239	0.347	0.483	0.384	0.239	0.393	0.029	0.219	<0.001
<b>EMP1</b>	0.230	0.338	0.311	<b>(0.767)</b>	0.037	0.038	0.192	0.483	0.382	0.048	0.003	0.483	0.039	0.290	0.583	0.283	<0.001
<b>EMP2</b>	-0.416	0.509	0.221	<b>(0.863)</b>	0.329	0.394	0.429	0.004	0.182	0.640	0.302	0.384	0.283	0.390	0.293	0.438	<0.001
<b>EMP3</b>	-0.524	0.003	0.490	<b>(0.809)</b>	0.431	0.290	0.481	0.458	0.594	0.239	0.203	0.403	0.583	0.593	0.218	0.380	<0.001
<b>PLA1</b>	0.085	-0.303	0.445	-0.543	<b>(0.742)</b>	0.023	0.119	0.192	0.438	0.483	0.370	0.039	0.394	0.593	0.519	0.481	<0.001
<b>PLA2</b>	-0.303	0.404	0.421	0.172	<b>(0.875)</b>	0.129	0.120	0.439	0.454	0.293	0.005	0.203	0.483	0.006	0.218	0.102	<0.001
<b>PLA3</b>	-0.130	0.001	0.403	0.490	<b>(0.863)</b>	0.203	0.384	0.123	0.443	0.394	0.319	0.302	0.581	0.484	0.310	0.289	<0.001
<b>HRM1</b>	0.104	-0.304	0.006	0.498	0.473	<b>(0.921)</b>	0.483	0.439	0.202	0.201	0.439	0.289	0.503	0.059	0.005	0.280	<0.001
<b>HRM2</b>	0.406	0.408	-0.452	0.504	0.374	<b>(0.830)</b>	0.482	0.434	0.584	0.483	0.123	0.293	0.372	0.510	0.485	0.372	<0.001
<b>HRM3</b>	-0.093	0.005	-0.038	0.432	0.340	<b>(0.930)</b>	0.191	0.483	0.492	0.304	0.392	0.300	0.370	0.128	0.056	0.238	<0.001
<b>TRU1</b>	0.459	0.547	-0.430	0.006	0.605	0.382	<b>(0.893)</b>	0.129	0.293	0.483	0.439	0.394	0.293	0.310	0.518	0.003	<0.001
<b>TRU2</b>	-0.004	0.401	0.038	-0.243	0.182	0.310	<b>(0.930)</b>	0.123	0.392	0.394	0.293	0.004	0.382	0.112	0.290	0.389	<0.001
<b>TRU3</b>	0.143	0.477	0.109	-0.063	0.047	0.092	<b>(0.857)</b>	0.431	0.210	0.493	0.102	0.384	0.293	0.120	0.429	0.483	<0.001
<b>REP1</b>	0.230	0.238	0.311	0.067	0.031	0.283	0.005	<b>(0.890)</b>	0.494	0.432	0.320	0.489	0.209	0.005	0.520	0.049	<0.001

<b>REP2</b>	-0.416	0.209	0.221	0.063	0.237	0.392	0.495	( <b>0.848</b> )	0.310	0.384	0.120	0.494	0.379	0.339	0.004	0.479	<0.001
<b>REP3</b>	-0.524	0.003	0.390	0.009	0.491	0.182	0.384	( <b>0.854</b> )	0.005	0.004	0.430	0.203	0.520	0.391	0.223	0.233	<0.001
<b>DEC1</b>	0.085	-0.303	0.345	-0.543	0.283	0.483	0.432	0.349	( <b>0.896</b> )	0.539	0.503	0.009	0.320	0.156	0.129	0.384	<0.001
<b>DEC2</b>	-0.303	0.404	0.321	0.172	0.495	0.294	0.003	0.493	( <b>0.930</b> )	0.003	0.305	0.293	0.490	0.005	0.239	0.129	<0.001
<b>DEC3</b>	-0.130	0.001	0.403	0.890	0.509	0.039	0.129	0.219	( <b>0.873</b> )	0.490	0.003	0.384	0.002	0.349	0.459	0.483	<0.001
<b>GOV1</b>	0.104	-0.304	0.006	0.798	0.048	0.302	0.392	0.419	0.049	( <b>0.940</b> )	0.530	0.489	0.393	0.513	0.349	0.410	<0.001
<b>GOV2</b>	0.406	0.408	-0.452	0.904	0.218	0.291	0.394	0.423	0.459	( <b>0.884</b> )	0.129	0.049	0.495	0.461	0.342	0.319	<0.001
<b>GOV3</b>	-0.093	0.005	-0.038	0.832	0.182	0.005	0.029	0.431	0.006	( <b>0.874</b> )	0.002	0.192	0.505	0.310	0.239	0.293	<0.001
<b>E-REC1</b>	0.259	0.547	-0.430	0.006	0.403	0.410	0.129	0.419	0.129	0.483	( <b>0.883</b> )	0.123	0.495	0.593	0.118	0.380	<0.001
<b>E-REC2</b>	-0.004	0.201	0.038	-0.243	0.592	0.391	0.438	0.423	0.483	0.005	( <b>0.892</b> )	0.030	0.005	0.516	0.129	0.038	<0.001
<b>E-REC3</b>	0.143	0.347	0.109	-0.063	0.045	0.192	0.439	0.420	0.201	0.410	( <b>0.802</b> )	0.394	0.493	0.440	0.452	0.378	<0.001
<b>BAL1</b>	0.230	0.438	0.311	0.067	0.392	0.210	0.120	0.003	0.005	0.382	0.220	( <b>0.940</b> )	0.349	0.319	0.457	0.003	<0.001
<b>BAL2</b>	-0.416	0.456	0.221	0.063	0.005	0.329	0.048	0.234	0.530	0.401	0.238	( <b>0.874</b> )	0.033	0.410	0.005	0.483	<0.001
<b>BAL3</b>	-0.524	0.003	0.390	0.009	0.283	0.410	0.322	0.310	0.304	0.004	0.039	( <b>0.794</b> )	0.219	0.519	0.235	0.495	<0.001
<b>TAL1</b>	0.085	-0.303	0.145	-0.543	0.384	0.419	0.129	0.519	0.293	0.549	0.583	0.054	( <b>0.920</b> )	0.529	0.0410	0.048	<0.001
<b>TAL2</b>	-0.303	0.404	0.121	0.172	0.483	0.210	0.239	0.019	0.039	0.034	0.489	0.429	( <b>0.892</b> )	0.059	0.112	0.128	<0.001
<b>TAL3</b>	-0.130	0.001	0.403	0.490	0.029	0.192	0.432	0.482	0.192	0.410	0.049	0.039	( <b>0.885</b> )	0.612	0.219	0.410	<0.001
<b>ALG1</b>	0.104	-0.304	0.006	0.498	0.195	0.310	0.002	0.192	0.005	0.193	0.129	0.923	0.493	( <b>0.879</b> )	0.230	0.119	<0.001
<b>ALG2</b>	0.406	0.408	-0.452	0.104	0.058	0.190	0.432	0.310	0.343	0.301	0.049	0.384	0.005	( <b>0.950</b> )	0.005	0.219	<0.001
<b>ALG3</b>	-0.093	0.005	-0.038	0.432	0.374	0.203	0.310	0.031	0.340	0.394	0.584	0.489	0.006	( <b>0.884</b> )	0.584	0.410	<0.001
<b>LED1</b>	0.403	0.349	0.349	0.392	0.485	0.302	0.005	0.310	0.045	0.005	0.458	0.584	0.495	0.049	<b>0.889</b>	0.349	<0.001
<b>LED2</b>	0.390	0.058	0.291	0.384	0.584	0.003	0.219	0.420	0.495	0.057	0.129	0.049	0.291	0.046	<b>0.793</b>	0.058	<0.001

<b>LED3</b>	0.048	0.039	0.503	0.102	0.059	0.389	0.120	0.102	0.405	0.493	0.483	0.459	0.293	0.329	<b>0.850</b>	0.589	<0.001
<b>PER1</b>	0.192	0.238	0.192	0.382	0.473	0.392	0.005	0.004	0.102	0.394	0.039	0.630	0.493	0.419	0.473	<b>0.894</b>	<0.001
<b>PER2</b>	0.491	0.192	0.493	0.102	0.281	0.492	0.340	0.129	0.523	0.029	0.219	0.510	0.429	0.056	0.028	<b>0.830</b>	<0.001
<b>PER3</b>	0.204	0.039	0.420	0.304	0.039	0.210	0.129	0.116	0.420	0.193	0.483	0.510	0.050	0.496	0.384	<b>0.903</b>	<0.001
<b>PER4</b>	0.410	0.231	0.034	0.192	0.432	0.492	0.542	0.349	0.005	0.390	0.392	0.039	0.125	0.551	0.048	<b>0.746</b>	<0.001

**Notes:**

**TQ** = Technology Quality; **SQ**= Service Quality; **SA** = Security Assurance; **EMP** = Empowered manager and members team; **PLA**= Content of a plan for implementation of e-recruitment; **HRM**= HRM and IT collaboration in e-recruitment; **TRU**= Job seeker Trust of E- Recruitment; **REP**= Organisational Reputation; **DEC**= Decentralisation of selection decision; **GOV**= Government objectives; **E-REC**= E-recruitment; **BAL**= Balancing current and future capability issues; **TAL**= Talent management check-up; **ALG**= Aligning capability and talent with a future focus; **LED**= Leadership and management capability; **PER**= Firm Performance.

### 5.3.1.2 Reliability Assessment

As mentioned previously, reliability expresses the extent to which a measure produces the same results on different occasions. The reliability can be evaluated through several methods such as internal consistency; this refers to a set of items in measuring a latent construct which is composed of a set of reflective indicators. Examining internal consistency allows the researcher to compare results across and between items within a single instrument (Colton & Covert, 2007). Traditionally, Cronbach's alpha coefficient is the most commonly used measure of scale reliability (Ketchen & Bergh, 2009). Furthermore, reliability, in SEM, can be assessed by using construct or composite reliability (CR) which addresses the internal consistency. As a rule of thumb, alpha and CR should be at least 0.7 to reach internal reliability (DeVaus, 2002). Table 6.4 shows that Cronbach's alpha coefficients and composite reliability coefficients were equal to and greater than 0.70. Therefore, this measure has an internal consistency

**Table 5.5: Reliability Assessment**

Latent Variables	TQ	SQ	SA	EMP	PLA	HRM	TRU	REP	DEC	GOV	E-REC	BAL
Cronbach's alpha coefficients	0.844	0.798	0.780	0.804	0.794	0.774	0.783	0.830	0.739	0.794	0.790	0.790
Composite reliability coefficients	0.895	0.837	0.847	0.874	0.894	0.804	0.890	0.883	0.832	0.858	0.847	0.847

Note

**TQ** = Technology Quality; **SQ**= Service Quality; **SA** = Security Assurance; **EMP** = Empowered manager and members team; **PLA**= Content of a plan for implementation of e-recruitment; **HRM**= HRM and IT collaboration in e-recruitment; **TRU**= Job seeker Trust of E- Recruitment; **REP**= Organisational Reputation; **DEC**= Decentralisation of selection decision; **GOV**= Government objectives; **E-REC**= E-recruitment; **BAL**= Balancing current and future capability issues; **TAL**= Talent management check-up; **ALG**= Aligning capability and talent with a future focus; **LED**= Leadership and management capability; **PER**= Firm Performance.

### **5.3.1.3 Validity Assessment - Convergent Validity**

Validity refers to the ability of an instrument to measure what it is intended to measure (Colton & Covert, 2007). Convergent validity is a measure of how well the items in a scale converge or ‘load together,’ on a single latent construct (Ketchen et al., 2007). The researcher evaluated Average Variance Extracted (AVE) which was the mean variance extracted for the items loading on a construct (Hair et al., 2010). AVE should be greater than 0.50. Table 5.5 demonstrates that, for each latent variable, the AVE is greater than 0.50. Hence, this measure is consistent with the rule of convergent validity.

Table 5.6: Average Variances Extracted

Latent Variables	TQ	SQ	SA	EMP	PLA	HRM	TRU	REP	DEC	GOV	E-REC	B
AVE	0.637	0.703	0.718	0.627	0.584	0.639	0.603	0.699	0.513	0.732	0.700	0.

### **5.3.1.4 Validity Assessment - Discriminant Validity**

Discriminant validity refers to the extent to which each construct differs from other constructs (Hair et al., 2010.). Discriminant validity exists if there is no strong relationship between the constructs (Colton & Covert, 2007). Discriminant validity is evaluated by the square root of the AVE, which must be greater than the correlations between the constructs (Fornell & Larcker, 1981). If the AVE for each construct is greater than its shared variance (which is the amount of variance that a variable (construct) is able to explain in another variable) with any other construct, discriminant validity is supported.

According to Andreev et al. (2009), latent variable validity is employed to identify whether the observed variables/items of the latent variable definitely measures what they are expected to, from the perspective of relationships between the latent variables and between the latent variable and their relative observed variables. To assess validity, Reve (1979) stressed that there are two validity subtypes, which are regularly tested: the first type is convergent validity and the other one is discriminant validity.

Regarding discriminant validity, it is assumed to hold when the extracted variance is greater than the squared correlation (Henseler et al., 2009; Kock and Verville, 2012), and it is recommended that the measurement item's loadings on their assigned latent variables should be an order of magnitude greater than their loadings on the other constructs (Head and Ziolkowski, 2010). Discriminant validity is employed to distinguish amongst constructs that are expected to measure diverse phenomena.

Table 5.6 shows that the square root of the AVE is greater than the correlations between the constructs (Fornell & Larcker, 1981). This condition is satisfied for all constructs. The correlation matrix reported, also, that there were significant correlations ( $P<0.001$ ) between the constructs are significant.

**Table 5.7: Correlation between Latent Variables and Square Roots of AVEs**

Latent Variables	TQ	SQ	SA	EMP	PLA	HRM	TRU	REP	DEC	GOV	E-REC	B
<b>TQ</b>	<b>0.637</b>											
<b>SQ</b>	0.560	<b>0.598</b>										
<b>SA</b>	0.453	0.495	<b>0.549</b>									
<b>EMP</b>	0.619	0.519	0.513	<b>0.395</b>								
<b>PLA</b>	0.492	0.419	0.239	0.459	<b>0.596</b>							
<b>HRM</b>	0.731	0.402	0.586	0.304	0.519	<b>0.782</b>						
<b>TRU</b>	0.401	0.694	0.619	0.419	0.219	0.492	<b>0.394</b>					
<b>REP</b>	0.391	0.821	0.834	0.519	0.321	0.293	0.519	<b>0.386</b>				
<b>DEC</b>	0.593	0.237	0.318	0.474	0.228	0.429	0.329	0.558	<b>0.648</b>			
<b>GOV</b>	0.501	0.529	0.340	0.586	0.329	0.519	0.485	0.219	0.592	<b>0.759</b>		
<b>E-REC</b>	0.568	0.596	0.621	0.667	0.428	0.439	0.569	0.329	0.437	0.384	<b>0.478</b>	
<b>BAL</b>	0.629	0.497	0.221	0.328	0.528	0.519	0.304	0.486	0.463	0.485	0.518	<b>0.</b>
<b>TAL</b>	0.600	0.427	0.123	0.459	0.459	0.678	0.328	0.684	0.473	0.704	0.284	<b>0.</b>
<b>ALG</b>	0.697	0.217	0.419	0.569	0.238	0.619	0.340	0.557	0.503	0.458	0.548	<b>0.</b>
<b>LED</b>	0.328	0.538	0.237	0.128	0.519	0.319	0.174	0.442	0.340	0.618	0.389	<b>0.</b>
<b>PER</b>	0.542	0.634	0.385	0.486	0.583	0.415	0.568	0.502	0.475	0.348	0.584	<b>0.</b>

Notes:

**TQ** = Technology Quality; **SQ**= Service Quality; **SA** = Security Assurance; **EMP** = Empowered manager and members team; **PLA**= Content of a plan for implementation of e-recruitment; **HRM**= HRM and IT collaboration in e-recruitment; **TRU**= Job seeker Trust of E- Recruitment; **REP**= Organisational Reputation; **DEC**= Decentralisation of selection decision; **GOV**= Government objectives; **E-REC**= E-recruitment; **BAL**= Balancing current and future capability issues; **TAL**= Talent management check-up; **ALG**= Aligning capability and talent with a future focus; **LED**= Leadership and management capability; **PER**= Firm Performance.

### 5.3.1.5 Full Collinearity VIFs and Q-squared Coefficients Assessment

Warp PLS produces full collinearity Variance Inflation Factors (VIFs) for all latent variables (see Table 5.7). It is used to measure discriminant validity and overall collinearity. VIFs are evaluated based on a full collinearity test which helps the identification of not only vertical but, also, lateral collinearity. It enables the testing of collinearity involving all latent variables in a model (Kock, 2013). “Vertical, or classic, collinearity is predictor-predictor latent variable collinearity in individual latent variable blocks. Lateral collinearity is a new term that refers to predictor-criterion latent variable collinearity; a type of collinearity that can lead to particularly misleading results” (Kock, 2013, P.13). A rule of thumb of full collinearity VIFs is 3.3 or lower to suggest no multicollinearity in the model (Kock, 2013). Table 5.7 shows that, for all latent variables, the full collinearity VIFs was lower than 3.3. Hence, the latent variables had no problem of multicollinearity and there was discriminant validity for these variables.

Moreover, Q-squared coefficient is used to evaluate the predictive validity of the model’s endogenous latent variable. In order to obtain acceptable predictive validity, a Q-squared coefficient should be above zero whilst the Q-squared coefficient of less than 0 means that the model is poor in predictive validity (Hair et al., 2010; Roldan & Sanchez-Franco, 2012). In this study, the Q-squared coefficients for all variables were above zero. Therefore, the model contributed to support predictive validity.

**Table 5.8: Full Collinearity VIFs and Q-squared Coefficients Assessment**

Latent Variables	TQ	SQ	SA	EMP	PLA	HRM	TRU	REP	DEC	GOV	E-REC	B
VIFs	2.19	1.98	2.93	1.20	3.12	2.18	2.12	3.11	2.10	1.38	2.12	1.
Q-squared coefficients	0.384	0.461	0.277	0.649	0.432	0.812	0.472	0.490	0.319	0.583	0.632	0.

### 5.3.1.6. Measurement Model of the Formative Second Order Constructs

Becker et al. (2012) pointed out that the second order construct should be formative. It is recognised that the statistical measurement model assessments for reflective indicators cannot be applied to formative indicators (Peng & Lai, 2012). Hair et al. (2011, P.146) stated that “the concepts of internal consistency reliability and convergent validity are not meaningful

when formative indicators are involved". Formative indicators are not necessarily correlated with each other; it is rather their composite that form the latent construct (Kock, 2013). Mackenzie et al. (2011) stressed that reliability measures such as composite reliability and Cronbach's alpha are inappropriate for formative indicators. However, Hair et al. (2011) have argued that with PLS-SEM, the measurement model's quality involving formative indicators can still be assessed. In assessing the quality of the formative measurement model, the researcher should examine whether each indicator truly contributes to forming the latent variable it intend to form (Hair et al., 2011). Petter et al. (2007) claimed that ensuring content validity for formative indicators means that the composite measures chosen by the researcher capture the full domain of the construct. Hair et al. (2011) have suggested examining this contribution through the indicator's weight. According to Cenfetelli and Brasselier (2009), if both indicator's weight and loading are non-significant, it would mean that the indicator does not contribute to forming the construct it intends to do and thus could be considered for elimination. Other researchers including Schmiedel et al. (2014) have only looked at the indicator's weight. Similarly, Kock (2011) explained that researchers may rely on p values associated to the indicators' weights to assess the validity of the formative constructs.

However, Hair et al. (2011) have warned that if the conceptual foundations strongly support the inclusion of a non-significant indicator in the formative scale, the researcher should keep this item. Henseler et al. (2009) explained that one reason of such a contradictory scenario could be a high level of multicollinearity of the indicator (redundancy of the indicator's information). In this case, the Variance Inflation Factor (VIF) should be checked (Schmiedel et al., 2014). There are two views regarding the appropriate level of VIFs (this is not to be mixed with the full VIF), while some views recommended that VIFs should be lower than five (Hair et al., 2012), others suggested a more relaxed threshold of 10 (Kaleka, 2012; Kock, 2013). The following tables (tables 5.8 and 5.9) present the indicator's loadings, weights and VIFs for the second order formative variables. As it can be noticed, all p values and VIFs are less than the threshold. As it could be seen from the tables, all second orders' indicators loadings and weights were significant and with a VIF not exceeding the critical value of 3.3. Hence, suggesting a good validity.

Table 5.8 shows that the indicator loadings and cross-loadings are larger than 0.5. The indicator-loading value falls between -1 and 1, and if the cross loadings value is greater than 0.5 the construct is valid and the indicators are internally consistent, provided that the

corresponding p-value is significant. The value across the construct must not be significant, meaning that the values across construct in a particular row should be lower than 0.50, otherwise the results would be spurious. The findings exhibited in Table 5.8 show adequate convergent and discriminant validity for the measurement questions.

**Table 5.8: 2nd Order Indicators' Loadings**

	<b>IDS</b>	<b>EDM</b>	<b>EDR</b>	<b>HRC</b>	<b>P value</b>
<b>TQ</b>	(0.837)	0.378	0.430	0.431	<0.001
<b>SQ</b>	(0.812)	0.342	0.483	0.319	<0.001
<b>SA</b>	(0.793)	0.093	0.381	0.312	<0.001
<b>EMP</b>	0.302	(0.804)	0.237	0.039	<0.001
<b>PLA</b>	0.584	(0.903)	0.492	0.219	<0.001
<b>HRM</b>	0.281	(0.793)	0.034	0.273	<0.001
<b>TRU</b>	0.493	0.483	(0.912)	0.342	<0.001
<b>REP</b>	0.320	0.489	(0.847)	0.098	<0.001
<b>DEC</b>	0.058	0.584	(0.788)	0.245	<0.001
<b>GOV</b>	0.458	0.594	(0.832)	0.034	<0.001
<b>BAL</b>	0.594	0.503	0.485	(0.772)	<0.001
<b>TAL</b>	0.127	0.281	0.239	(0.881)	<0.001
<b>ALG</b>	0.439	0.493	0.342	(0.912)	<0.001
<b>LED</b>	0.457	0.590	0.002	(0.796)	<0.001

Note

**IDS**= Internal determinants (E-recruitment System Strength); **EDM**= External determinants (E-recruitment Management support) Strength; **EDR**= External determinants (Applicant –organisation relationship; **HRC**= Human resource capability.

**Table 5.9: 2nd Order Constructs' Indicator Weights and VIF**

	<b>IDS</b>	<b>EDM</b>	<b>EDR</b>	<b>HRM</b>	<b>P value</b>	<b>VIF</b>
<b>TQ</b>	(0.201)	0.000	0.000	0.000	<0.001	0.218
<b>SQ</b>	(0.294)	0.000	0.000	0.000	<0.001	0.104
<b>SA</b>	(0.128)	0.000	0.000	0.000	<0.001	0.312
<b>EMP</b>	0.000	(0.312)	0.000	0.000	<0.001	0.156
<b>PLA</b>	0.000	(0.184)	0.000	0.000	<0.001	0.102
<b>HRM</b>	0.000	(0.103)	0.000	0.000	<0.001	0.318

<b>TRU</b>	0.000	0.000	<b>(0.318)</b>	0.000	<0.001	0.412
<b>REP</b>	0.000	0.000	<b>(0.182)</b>	0.000	<0.001	0.295
<b>DEC</b>	0.000	0.000	<b>(0.310)</b>	0.000	<0.001	0.216
<b>GOV</b>	0.000	0.000	<b>(0.231)</b>	0.000	<0.001	0.418
<b>BAL</b>	0.000	0.000	0.000	<b>(0.317)</b>	<0.001	0.341
<b>TAL</b>	0.000	0.000	0.000	<b>(0.210)</b>	<0.001	0.219
<b>ALG</b>	0.000	0.000	0.000	<b>(0.175)</b>	<0.001	0.227
<b>LED</b>	0.000	0.000	0.000	<b>(0.310)</b>	<0.001	0.482

### 5.3.1.7. 2nd Order Collinearity Test

As mentioned above for the first order variables, in PLS-SEM, Kock and Lynn (2012) recommends using the full variance inflation factor (VIF) for each predictor construct to assess the full collinearity. Tables 5.10 show the full collinearity (Full VIFs).

**Table 5.10: Full VIFs of the 2nd Order Constructs**

	<b>IDS</b>	<b>EDM</b>	<b>EDR</b>	<b>HRC</b>
<b>VIFs</b>	1.94	2.12	1.38	1.73

Note

**IDS**= Internal determinants (E-recruitment System Strength); **EDM**= External determinants (E-recruitment Management support) Strength; **EDR**= External determinants (Applicant –organisation relationship; **HRC**= Human resource capability.

Based on the reliability, validity and collinearity tests conducted for both the first and second order variables. It can be argued that the measurement model presents satisfactory values and hence, the researcher can safely proceed to the analysis of the structural model.

### 5.3.2 Assessing the Structural Model

A structural model is described as causal relationships between latent variables. The structural mode aims to test the hypothesized research model. The overall fit of the model fit indices was evaluated by using the following three measures: Average Path Coefficient (APC); Average R-squared (ARS) and Average Variance Inflation Factor (AVIF). Kock (2012) recommended that APC and ARS were significant ( $P < 0.05$ ) whilst the AVIF value ought to be below 5. Table 5.11 reports that these measures were in the range of the fitting model and, therefore, there was a good fit model.

The WarpPLS software 5.0 employed in this study provides ten models fit and quality indices (see Table 5.11). Consequently, it can be concluded that the ten criteria for the model fit and quality indices are established in this study.

Table 5.11: Model Fit and Quality Indices

Criterion	Assessment	Supported
(1)Average Path Coefficient (APC)	0.463	Supported
(2)Average R-squared (ARS)	0.681	Supported
(3)Average adjusted R-squared (AARS)	0.6522	Supported
(4)Average block VIF (AVIF)	2.392	Supported
(5)Average full collinearity VIF (AFVIF)	1.829	Supported
(6)Tenenhaus GoF (GoF)	0.627	Supported
(7)Simpson's paradox ratio (SPR)	0.791	Supported
(8)R-squared contribution ratio (RSCR)	0.872	Supported
(9) Statistical suppression ratio (SSR)	1.000	Supported
(10) Nonlinear bivariate causality direction ratio (NLBCDR)	0.793	Supported

Note: Average path coefficient (APC) =0.463,  $P < 0.00$ ; Average R-squared (ARS)=0.681,  $P < 0.001$ ; Average adjusted R-squared (AARS)=0.652,  $P < 0.001$ ; Average block VIF (AVIF)=2.392, acceptable if  $\leq 5$ , ideally  $\leq 3.3$ ; Average full collinearity VIF (AFVIF)=1.829, acceptable if  $\leq 5$ , ideally  $\leq 3.3$ ; Tenenhaus GoF (GoF)=0.627, small  $\geq 0.1$ , medium  $\geq 0.25$ , large  $\geq 0.36$ .

The previous criteria of the model fit indices (see Table 5.11) can be illustrated according to Kock (2015).

In this study, the researcher used the stable re-sampling method. It was likely to produce more stable resample path coefficients, which were more reliable P values. Kock, (2013) stated that it was preferable not to use this method when the sample sizes were small (lower than 100). The overall fit measures suggest that the model is a plausible representation of the

structures underlying the empirical data. The APC= (0.463,  $p<0.001$ ), ARS= (0.681,  $p<0.001$ ), AARS= (0.652,  $p<0.001$ ), AVIF= (2.392), and GOF= (0.627). As long as the Average Path Coefficient (APC), the Average R squared (ARS), and the Average adjusted R-squared (AARS) are significant under 5% level, and the average variance Inflation Factor (VIF) is lower than 5. As well as the geometric mean of the average communality (GOF) suggests a large effect size, the overall fit indices indicate a good fit of the model (Kock, 2013).

According to Urbach and Ahleman (2010), the Q2 statistics is a measure of the predictive relevance of a block of manifest variables. The structural model's predictive relevance can be assessed via nonparametric Stone-Geisser test (1975). Q2 values indicate how well observed values are reconstructed by the model and its parameter estimates. Positive Q2 values confirm the model's predictive relevance in respect of the particular construct. Q2 less than 0 mean that the model lacks predictive relevance. The proposed threshold value is  $Q2 > 0$  (Urbach & Ahleman, 2010).

Effect size measures if an independent LV has a substantial impact on a dependent LV (Cohen, 1992). It is calculated as the increases in R<sup>2</sup> of the LV to which the path is connected, relative to the LV's proportion of unexplained variance. Values of between 0.020 and 0.150, between 0.150 and 0.350 and exceeding 0.350 indicate whether a predictor LVs (exogenous LV) has a small, medium or large effect on an endogenous LV respectively (Gefen et al., 2000).

We used the Cohen (1992) effect size  $f^2$  to examine the essential impact of the proposed model, which refers to "the degree to which the phenomenon is present in the population". The values of 0.02, 0.15, and 0.35 refer to small, medium, and large effect sizes respectively as presented by Cohen (1992). Regarding our proposed model, e-recruitment ( $f^2 = 0.49$ ) and firm performance ( $f^2 = 0.66$ ) have a large effect size, while HR capabilities ( $f^2 = 0.30$ ) has a medium effect size. Based on Stone-Geisser Q2 we tested our structural model predictive validity. The cross-validated construct redundancy Q2 is required to test the predictive validity, as the structural model has a predictive validity if the Q2 greater than zero (Roldán and Sánchez-Franco, 2012). The values of Q2 in our PLS model are 0.59 for e-recruitment,

0.67 for firm performance, and 0.45 for HR capabilities, which indicates the strong predictive validity of our model.

### **5.3.3 Results Overview**

In order to evaluate the hypothesis proposed in this study the entire structural model was reviewed to establish if the proposed theoretical paths were significant and thus supported the proposed theory. Figure 5.1 shows the results of the structural model analysis of the proposed research model.

The results of the SEM analysis are shown in Figure 5.1. Each hypothesis refers to a link in the model while links refer to variable-pair relationships. The latent variables are represented by oval shapes while the manifest variables are represented by a square. Beta coefficients, standardized partial regression coefficients, denote the strengths of the multivariate associations among variables in the model. The symbol “\*” refers to beta coefficients with a significance level lower than 5 per cent ( $P<0.05$ ) the symbol “\*\*” to  $P<0.01$  and the symbol “\*\*\*” to  $P<0.001$ . The symbol “NS” represents beta coefficients that were not statistically significant. R-squared coefficients, under endogenous variables, show the percentage of variance explained by the variables that point to them in the model.

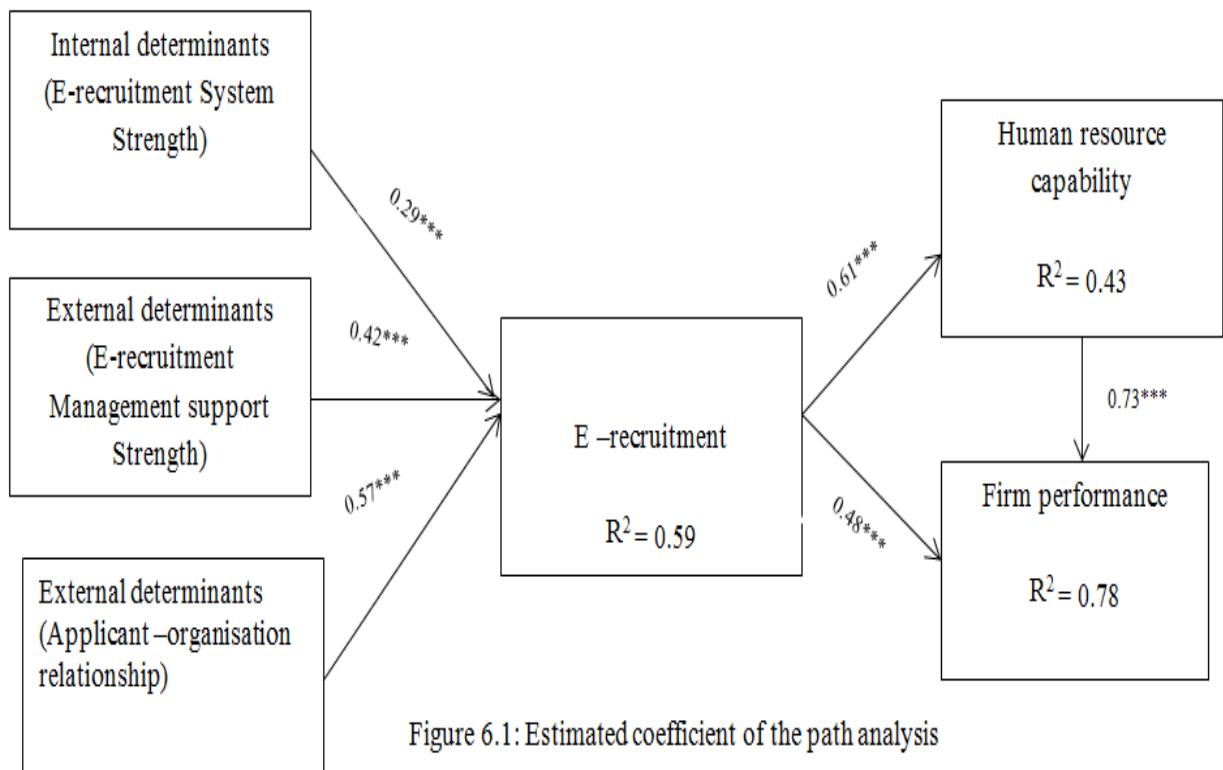


Figure 6.1: Estimated coefficient of the path analysis

**Figure 5.1: Estimated coefficient of the path analysis**

After examining the paths, the results supported 6 out of the 6 proposed hypotheses (See Table 5.12) explaining 59 % of e-recruitment variance, 43% of human resource capability, and 78% of firm performance variance.

**Table 5.12: Support for the Hypotheses Based on the Results**

Independent variables	B	P. Value	F <sup>2</sup>	H	Hypotheses supported/Not supported
Internal determinants → e-recruitment	0.29	<0.001	0.28	H1	Supported
External determinants (management support) → e-recruitment	0.42	<0.001	0.37	H2	Supported
External determinants (relationship) → e-recruitment	0.57	<0.001	0.62	H3	Supported
e-recruitment → HR Capability	0.61	<0.001	0.68	H4	Supported
e-recruitment → firm performance	0.48	<0.001	0.29	H5	Supported
e-recruitment → HR Capability → firm performance	0.73	<0.001	0.58	H6	Supported
<b>R<sup>2</sup> Coefficient for Dependent Variables</b>					

<b>Dependent Latent Variables</b>	<b>R<sup>2</sup> Coefficient</b>	<b>Assessment</b>
<b>e-recruitment</b>	<b>0.59</b>	Strong
<b>HR Capability</b>	<b>0.43</b>	Strong
<b>Firm performance</b>	<b>0.78</b>	Strong

Based on the results, the strongest predictors of e-recruitment were: External determinants (applicant-organisation relationship) ( $\beta = 0.57$ ,  $P < 0.001$ ), External determinants (e-recruitment management support strength) ( $\beta = 0.42$ ,  $P < 0.001$ ), and Internal determinants (E-recruitment System Strength) ( $\beta = 0.29$ ,  $P < 0.001$ ). Findings also show that e-recruitment is a significant and strong predictor of human resource capability ( $\beta = 0.61$ ,  $P < 0.001$ ), and firm performance ( $\beta = 0.48$ ,  $P < 0.001$ ), thereby the results support hypotheses H1, H2, H3, H4 and H5.

A mediating variable is defined as a variable that explains the correlation between an independent variable (exogenous) and a dependent variable (endogenous) (Frazier et al., 2004). Hair et al. (2014) explains that a mediator provides information about an established and significant direct relationship. Thus, a mediator illustrates the mechanism through which a direct relationship takes place (Frazier et al., 2004).

Mediation can be partial or full (complete). When the relationships between the dependent and independent variables is significant (as a direct correlation) and become insignificant upon the inclusion of the mediating variable (the indirect effect should remain significant), the mediation here is considered to be full. However, when the direct relationship remains significant upon the inclusion of the mediating variable, the mediation would be partial (Kock, 2013). According to Kock (2013) and Hair et al. (2014), assessing a mediating effect should be conducted based on the following steps,

(1) The determination of the direct relationship between the exogenous and endogenous variables without including the mediating factor, if this is significant, the researcher can continue to the second step.

(2) The inclusion of the mediating variable in the relationship, if the indirect effect is significant and the direct effect remain significant too, one can conclude that a partial mediation has taken place. Nonetheless, if the indirect effect is significant and the direct effect become non-significant, then the researcher can conclude a full mediation. Last, if the indirect effect is non-significant, then one can conclude that there is no mediation effect.

To check the mediating role of human resource capability in the relationship between e-recruitment and firm performance, three separate analyses were performed. The results revealed that all standardized, indirect (i.e. mediated by human resource capability) effects on firm performance are significant (please see table 5.13). The partial mediation model was supported. These findings are consistent with the path analysis results. A Sobel test has been conducted. The results also supported the mediating effects of human resource capability ( $p < 0.001$ ).

**Table 5.13: Mediation Analysis Results**

<b>Fit estimates</b>	APC	ARS	AARS	AVIF	GOF
<b>Model 1</b>	0.532	0.548	0.503	2.983	0.517
<b>Model 2</b>	0.498	0.601	0.537	2.934	0.536
<b>Model3</b>	0.463	0.681	0.652	2.392	0.627
<b>Model 1, full mediation</b>		<b>Model 2, no mediation</b>		<b>Model 3, partial mediation</b>	

R<sup>2</sup>

**Human resource** 0.42 0.43

## capibility

<b>Firm performance</b>	0.75	0.32	0.78
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Based on Table 5.13, it can be concluded that human resource capability partially mediates the relationship between e-recruitment and firm performance.

## 5.4 Post hoc analysis

In addition to the theorized model in this research project, a number of demographic questions were also included. The purpose of these additional questions was to provide a differentiating condition within the data set so as to compare groups. The demographic data collected included age, gender, and education. A saturated model analysis was also conducted post hoc to explore if there were any additional significant relationships in the proposed model that were not hypothesized.

The saturated model identified two additional relationships. The first relationship is between internal determinants of e-recruitment and HRM capabilities and shows internal determinants of e-recruitment influences HRM capabilities with a Beta of 0.36,  $p < .001$ . The second discovered relationship is between external determinants of e-recruitment (organization-applicant relationship) and firm performance a Beta of 0.48,  $p < .001$ .

## 5.5 Conclusion

This chapter aims to statistically test the research hypotheses, which answer the research questions. Before examining these hypotheses, the researcher analyses non-response bias and common method bias. This study has confirmed that a sample size is suitable for performing CFA and the structural model. The results also suggest that non-response may not be a problem and there are no common variables or common method bias. Finally, this study used PLS to test the research hypotheses. PLS produces a measurement model and paths analysis. The results of the measurement model show that this measure has an internal consistency as reliability and convergent validity are accepted. Furthermore, the condition of discriminant

validity is satisfied for all constructs. The research findings have confirmed all hypotheses are accepted.

## **CHAPTER SIX: DISCUSSION AND CONCLUSION**

### **6.1 Introduction**

Based on the main aim of the study, which has been to examine both the internal and external determinants of e-recruitment and its effect on HR capability and firm performance in the Kingdom of Saudi Arabia, as discussed in the literature review in this study, a conceptual framework has derived to explain the relationship between the study variables. First, the conceptual framework examines the relationship of internal determinants, which consists of three main variables: (1) technology quality, and, (2) service quality, and (3) security assurance Factors on e-recruitment. Second, the study examines the relationship of External determinants e.g. empowered manager and member team, content of an implementation plan for e-recruitment, HR and IT collaboration in e-recruitment, job seeker trust in e-recruitment, organizational reputation, decentralization of selection decision, and government objectives on e-recruitment, and the effect of e-recruitment on HR capability and firm performance.

The use of electronic recruitment, also called e-recruitment is rapidly becoming one of the fastest-growing recruitment techniques (Lawrence et al., 2007, SHRM, 2008; Rosoiu and Popescu, 2016). Despite the apparently widespread use of e-recruitment, however, a gap

seems to have emerged between research and practice (García-Izquierdo et al., 2010; Sylva & Mol, 2009; Narmadha and Nagi, 2017), possibly because scholars are struggling to keep up with the sheer pace of change (Anderson, 2003). Organisational recruitment plays a crucial role in the development of human capital and strategic human resource management (Liviens & Chapman, 2010; Millmore, et al., 2007). The increasing number of research contributions tends to focus on the design of corporate recruitment websites (Selden & Orenstein, 2011), applicants' perceptions of career websites (Braddy et al., 2009; Williamson et al., 2010), and e-recruitment system design (Furtmueller et al., 2011; Narmadha and Nagi, 2017). So far, however, there has been little academic research on the subject from an organisational, i.e. recruiters', perspective (Wolfswinkel et al., 2010). Moreover, little attention has been given to the impact of e-recruitment on firm performance as a whole (Parry & Tyson, 2009; Narmadha and Nagi, 2017), or to how the e-recruitment process is integrated in practice (Lee, 2011). In this respect, the study has adopted a comprehensive approach simultaneously exploring the effects of e-recruitment on firm performance in the context of Saudi Arabia. Moreover, this study investigates the mediating role of HR capability in the relationship between e-recruitment and firm performance.

This study adopted a positivist philosophy. A deduction approach and quantitative method were also suitable for this study. A questionnaire was delivered to some companies in Saudi Arabia. A total of 500 questionnaires were sent, but only 418 were received; for 84.0 percent response rates. This study used PLS to test the research hypotheses. The measurement model has confirmed that the measure indicates accepted reliability and validity. Based on the research results, most hypotheses are accepted. This means that the e-recruitment play a crucial role in improving firm performance.

The findings of this study support the argument that e-recruitment plays an important role in improving firm performance. Therefore, firms that use e-recruitment to attract new job seekers will improve their performance. These findings extend prior literature by showing, for the first time, how e-recruitment and HR capability influence firm performance.

This study has confirmed that e-recruitment has a positive and significant effect on firm performance. These variables account for 43% and 78% of the variety in HR capability and firm performance, respectively, whereas 57% and 22% are related to other variables. This finding is consistent with the argument that if firm use e-recruitment, they are more likely to improve firm performance. Moreover, high HR capability enhances firm performance.

Overall, this research reviews e-recruitment from the perspective of employees. While a number of studies have addressed e-recruitment (Mithas & Rust, 2016; Braddy & Meade, 2008; Bhuiyan, et al., 2015; Khashman & Al-Ryalat, 2015). Yet, little research has been conducted on the determinants of e-recruitment and the effects of e-recruitment on firm performance through HR capability. This study, in turn, was an attempt to fill this gap in e-recruitment literature by investigating the indirect effect of e-recruitment on firm performance.

This chapter highlights the main empirical findings, which are contained in the previous chapter and in detail presents the results of analysis conducted to test the research hypotheses. These discussions relate to findings based on previous studies and the context of the study. In the first section of this chapter, a brief overview of the study is provided. The second section provides a detailed discussion of each set of variables with their related effects. Finally, this chapter discusses the contributions and implications of the study, the limitations of the study, and the future research.

## **6.2 E-recruitment Determinants**

The rapid advances in technology have dramatically changed the way business is conducted and this increasing use of and reliance on technology is clearly demonstrated by the number of organisations and individuals who utilise the Internet and electronic mail (e-mail). The impact of technology on business is further reflected by the continuous rise in amount of literature exploring the effects of new technology development and implementation on the efficiency of business, including the impacts on human resource practices (Cullen, 2001; Smith et al., 2004; Narmadha and Nagi, 2017). In particular, the adoption of the Web as a medium by organisations has been faster than any other medium in history (Bush et al., 2002). This is demonstrated by the fact that while it took more than 30 years for radio as a medium to reach 50 million listeners, the Internet reached 50 million users within five years (Kerschbaumer, 2000; Bondarouk, et al., 2016).

Electronic Recruitment has made the job much easier for both the companies and the job seekers and here the credit goes to the Software, IT Professionals, Internet, Computer and many other people who are working back-end. E-Recruitment is an easiest and convincing way to hire people from any part of the world and promotes opportunity, it benefits the company to be recognised globally, and E-HRM helps in conveying any kind of HR policies,

training program, and pay slip sheets easily. E-HRM is based on more systematic and technology theorem, which helps the HR department to scrutinize employee performance carefully and accurately. It helps in imparting any HR policy; keep a track on employees daily activity report (DAR), efficiently helps the employees in promotion & transfers.

In terms of human resource management, the Internet has changed recruitment from both an organisational and a job seekers point of view (Warner, 2005; Bondarouk, et al., 2016). Traditional recruitment processes are readily acknowledged as being time-consuming with long hiring cycle times, high costs per process and minimal geographical reach (Lee, 2005). In contrast to this, the rapid introduction of the internet into recruitment processes can primarily be attributed to the Internet. unrivalled communication capabilities which allow for written communication (e-mails and documents) to be transmitted in a second; for organisation and individual web-sites to be accessed at the click of a mouse and for real-time conversations (print, audio and visual) to be conducted in an instant (Bingham et al., 2002). This communication is quick, easy and cheap and its reach is on a local, national and international scale.

E-recruitment, also known within the literature as online recruitment, Internet recruiting or cyber recruiting refers to the practice of advertising job vacancies online, and the formal sourcing of information about jobs online (Galanaki, 2002; Narmadha and Nagi, 2017). Whilst e-recruitment is considered a relatively new concept for many organisations, articles on the topic first started appearing in the mid-1980s (Casper, 1985). However, it wasn't until almost a decade later in the mid-1990s that more systematic and rigorous literature and research on e-recruitment began to appear in human resource related journals. The rise in the amount of literature on e-recruitment was initially attributed to the sudden increase in the use of online recruitment by IT companies and universities (Galanaki, 2002; Narmadha and Nagi, 2017) although as the technology field is constantly changing and progressing, much of what has been discussed in literature is now out of date (Bartram, 2000). It is therefore important that new research on e-recruitment is regularly published to report new developments as they arise.

Within developed countries it is reported that more than 75% of Human Resource professionals utilise Internet recruitment methods (ie. internet job boards) in conjunction with more traditional recruitment methods, such as newspaper advertisements and employee referrals (Anonymous, 2000). Among job seekers, an estimated one in four utilise the internet to source job opportunities (Smith et al., 2004). Further evidence of the growing use and

reliance on e-recruitment was documented in a study undertaken by Lee (2005) who found that all of the Fortune 100 companies as listed by the 2003 Fortune magazine used some form of e-recruitment to advertise positions vacant.

The popularity of the internet as a recruitment source now sees a variety of positions being advertised on the internet, from traditionally blue-collar/trades type roles, to white collar and professional positions (Baxter, 2005; Narmadha and Nagi, 2017). Wyld.s (1997, p.16) prediction that the Internet may well be transforming forever the way corporations recruit employees and the way individuals hunt for jobs has certainly come to fruition in today's workforce. Indeed, the popularity of the internet as a means of sourcing jobs should continue to rise following the recent approval of a jobs domain in the United States (Pont, 2005). Such a move could vastly reduce the costs of corporate recruiters who currently pay fees to post jobs on commercial job boards, and has the potential to take the commercial job boards out of the market if they are unable to capitalise on it (Zappe, 2005; Glaister, et al., 2017).

Organisations also promote and encourage the use of online recruitment by integrating it with the overall corporate marketing and branding strategies through the inclusion of their Internet address in mainline and classified advertisements (Challapalli, 2005; Glaister, et al., 2017). Indeed, there has been research which links corporate advertising with increased quality of applicants (Collins & Han, 2004). The findings from their study indicated that organisational advertising was the only predictor that had consistently significant direct effects on measures of applicant quantity (total number of applications) and applicant quality (education and one year of on-the-job experience).

Internet recruiting also extends to more interactive recruitment tools, creating an avenue to build relationships (potentially long-term) between job seekers and organisations (Mooney, 2002). Some of the key features of e-recruitment include the ability for organisations to initiate background checks, undertake interviews, create customised e-mail notification of recruiters for passive and active candidates, provide multiple language support, psychometric testing, interactive application forms and other assessment tools (Smith et al., 2004). The use of such web based interactive screening tools is currently only utilised by approximately one-third of organisations (Hausdorf et al., 2004; Glaister, et al., 2017), however sophisticated internet recruitment tools are gaining popularity with companies in an attempt to reduce the size of applicant pools efficiently (Leonard, 2000; Glaister, et al., 2017).

E-recruitment management support determinants for e-recruitment are the most important components of e-recruitment, as the relevant management support activities refer to the electronic recruitment strategy formulation, the activities definition, and in which areas the

adopted information technology application is introduced (DeLone, 2003; Handlogten, 2009; Parasuraman et al., 2005; Glaister, et al., 2017). Haines and Lafleur (2008) found a positive relationship between the degree of IT support of HR activities and HR manager perceptions of the organization's HR strategic effectiveness.

When considering whether or not an organization's recruitment website can change viewers' impressions of the organization, it is important to consider the psychological processes utilized by the viewer of the website. Signaling theory (Spence, 2003; Glaister, et al., 2017) provides a theoretical underpinning for why an organization's recruitment website may affect a viewer's perception of the organization. According to this theory, when an individual does not have complete data, or is uncertain of the position he or she should take on a matter, he or she typically draws inferences based on cues from available information. Job seekers are often limited in their knowledge about a potential hiring organization (Rynes & Miller, 1983); thus, signaling theory suggests that any information that a job seeker views will guide his or her impressions of the hiring organization. As a result, variables that do not seem to have a strong direct connection to a job or organization (e.g., a recruiter's attire or knowledge) can become cues for what it would be like to work for that organization and may also influence individuals' attraction to hiring organizations (Turban, 1996; Bondarouk, et al., 2016). In the context of Internet recruiting, signaling theory suggests that in the absence of other information about an organization, applicants will draw inferences about the organization based on peripheral cues gained from its website. This primarily occurs because applicants assume that these cues or characteristics are representative of the entire organization (Rynes et al., 1991; Glaister, et al., 2017). For example, if an organization maintains a website that is difficult to navigate, job seekers may use this information about the organizational website to form a general negative impression of the organization because they assume that is indicative of how other practices and policies at the organization are implemented. Or, they may form a specific conclusion that like its website, the organization is disorganized or that the entire recruitment process will be too cumbersome to complete.

Grönroos et al. (2000) propose, that for services offered on the Internet the traditional service concept, consisting of a core service complemented by facilitating and supporting services needs to be extended with a fourth factor, the user interface. Core, facilitating and supporting services can be interpreted as the content range of services that the company offers to its customers, while the user interface is the medium through which the services are provided. Consumers evaluate both what the company offers (content) and how it is offered (form). The

core service is the main reason for the company to be on the market. Facilitating services are mandatory for making the service accessible, whereas supporting, or supplementary (Anderson and Narus 1995) services are value-adding components that are used to distinguish the service from competitors' offerings (Grönroos 1990; Bondarouk, et al., 2016).

In practice, it is often difficult to distinguish between facilitating and supporting services (Grönroos et al. 2000; Bondarouk, et al., 2016). For example, the core service of an online recruitment service is to act as an intermediary between recruiting companies and job applicants by posting companies' job announcements and collecting applicants' records. Enabling customers to submit their CV to a job board can be interpreted as a facilitating and mandatory service for receiving job offers, whereas secure payment is a mandatory facilitating service for online purchases. Facilitating services could also include customised search engines and archives, or help-functions and instructions that facilitate customers' access to the core service.

Nowadays, it is a known fact that using internet for recruitment is an upward trend. This study has empirically reviewed the findings of the employed jobseekers' perceptions and experiences on e-recruitment and its effects on HR capability and firm performance. Based on the findings of the final model, this study has identified few key indicators to e-recruitment, thus contributing to the existing knowledge in the human resources literature, particularly in recruitment.

The study revealed that the internal determinants of e-recruitment e.g. technology quality, service quality, and security assurance factors have significant influence on e-recruitment, these results are consistent with prior study (e.g. Alsultanny & Alotaibi, 2015; Braddy et al, 2008; Bondarouk & Ruël , 2009; Bondarouk, et al., 2016).

Our findings also showed that the external determinants of e-recruitment (E-recruitment System Strength, e-recruitment management support strength, and applicant-organisation relationship) had a significant positive effect on e-recruitment. Consequently, the current research empirically concludes and confirms to the extent literature (Ravichandran & Lertwongsatien, 2005; Braddy, et al., 2009; Marler & Fisher, 2013; Devece, et al., 2016).

### **6.3 E-recruitment and Firm Performance**

Past research linking IT and firm performance has largely focused on the competitive advantage derived from IT applications and the relationship between IT investments and firm performance. Early research drew from the industrial organization perspective and proposed conceptual frameworks to examine the competitive advantage offered by key IT applications (Saunders & Jones, 1991; Bondarouk, et al., 2016; Ravichandran & Lertwongsatien, 2005). This research stream argued that IT innovations have the potential to alter a range of strategic and industry factors such as cost positions, scale economies, and power relations with buyers and suppliers, and thereby provide competitive advantage.

However, the focus on strategic applications as a source of competitive advantage has been critiqued. IT applications might provide only limited advantages to innovators before being copied by competitors, which essentially extends current competitive positions, but at increased costs (Anon., 1986; Bondarouk et al., 2015 ). Strategic applications create switching costs, which in turn, were expected to be a source of competitive advantage. The conceptual limitations of attributing the source of competitive advantage from IT based switching costs have been pointed out (Mahmood & Mann, 1993; Bondarouk et al., 2015). These include the inability of firms to profit from switching costs because of potential customer backlash in competitive markets and the emergence of open systems that considerably reduce, if not eliminate, switching costs.

Adopting a more macro perspective, another research stream has examined the relationship between IT investments and firm performance and found mixed results. Some studies (Barua , et al., 1995; Glaister, et al., 2017) have reported a positive relationship between IT investments and firm financial performance, whereas others have found no significant relationships (Kettinger, et al., 1994; Glaister, et al., 2017) In resolving these inconsistent findings, researchers have stressed the need to shift the analytical focus to a more granular level and to refine the operationalization of firm performance variables. Since the immediate effects of IT manifest in process improvements, more conclusive results are expected when IT investments are related to process performance (Segars , et al., 1998). Empirical studies using intermediary performance measures such as process efficiency and quality have reported more consistent results (Rai, et al., 1997; Glaister, et al., 2017), though only very few studies have been undertaken so far. The scope of the performance measures has also been expanded to include consumer surplus, based on the argument that the value created by

IT need not be appropriated by firms in a manner that manifests in improved financial performance (Hitt & Brynjolfsson , 1996). Instead, it could enhance the value customers get through improved product and service offerings. The effect of IT investments on firm productivity has also been examined (Brown , et al., 1995; Glaister, et al., 2017), with mixed results.

The contingencies under which IT investments become valuable to a firm have also been examined. The performance effects of IT investments has been found to differ under monopolistic and duopolistic conditions, and market sensitivities to price and product quality have also been found to affect the relationship between IT investments and firm performance (Quan, et al., 2003; Glaister, et al., 2017). Moreover, these relationships have been found to vary across industries. Although a few industry-specific studies have been reported so far (Devaraj & Kohli , 2000; Quan , et al., 2003; Glaister, et al., 2017 ), further research is needed to develop deeper knowledge about the contingencies under which IT investments enhances firm performance. Investing in IT is not a necessary and sufficient condition for improving firm performance, since IT investments might be wasted (Davem & Kauffman , 2000). Adopting a process view, Soh and Markus (DeGross , et al., 1995; Narmadha and Nagi, 2017). proposed that IT investments should be converted into IT assets such as IT infrastructure and applications. Furthermore, the IT assets would have to be put to appropriate use for them to be of value to the firm. Appropriate use is expected to create intermediary effects, such as IT being embedded in products and services, streamlined business processes, improved decisions, and dynamic organizational structures, which in turn can be expected to affect firm performance. Whereas conceptual models have emphasized the importance of IS a capability in converting investments into IT assets, and that of targeted IT use, for firms to benefit from IT investments (Mooney, et al., 1996; Narmadha and Nagi, 2017), limited research has been undertaken to elaborate both of these concepts.

A Study by Davoudi and Fartash (2012) noted that there is a significant impact to electronic human resources management on organizations. Whereas, the success of organizations, in their performance and the achievement of the competitive advantage, depends on the modern methods of human resources management in organizations, which will in turn lead to efficiency, effectiveness and productivity. This will result in the organizational survival, which helps in achieving the organizational success. In addition, Srivastava (2010) showed that the administration of electronic resources affect essential to the management and

development of human resources in the exchange of experiences and providing a platform for distance learning, and changing the culture of the institution in regards paper and electronic use in all work areas, and work environment are mainly dependent on information and communications technology. The study showed that the administration of electronic resources is flexible in responding to changes in the systems and labour laws and workers, and a tactical shift of attention plans facilitates the application of strategic planning. (Khashman & Al-Ryalat, 2015) conducted a study in Mexico to investigate the role of human resources management in gaining a global competitive electronic advantage for Mexican companies within the industrial services sector; the study found that these companies achieved a global competitive advantage through the application of e-recruitment, e-selection and e-training.

One of the theoretical models to inspire recent research in management information systems is the RBV (Liang et al. 2010). The RBV highlights the importance of resources and capabilities, particularly those of an intangible nature, in business strategy, competitiveness, and success. The essential determinant of long-term competitive advantage and economic rents is the ability to accumulate, protect and continually develop resources and capabilities that are valuable, rare, idiosyncratic and inimitable and which have imperfect mobility (Lockett et al. 2009). Capabilities are the skills the firm possesses in deploying its resources, in a generally coordinated way, using organizational processes to achieve a desired goal. (Devece , et al., 2016) Stresses that, while resources can be used as a unit of analysis, true sustainable competitive advantage is achieved by articulating these resources in order to create organizational capabilities integrated within the organization and which are difficult to imitate by competitors. The more precise the coincidence of a set of complementary assets, the more marked the specificity of the intangible assets will become, and, consequently, more difficult to copy. Complementarity intensifies specificity and asset specialization, as well as their social complexity, and heightens the difficulties of causal observation faced by competitors (Powell & Dent-micallef, 1997; Narmadha and Nagi, 2017). Thus, the use of IT implementing sophisticated IS, and therefore, the integration of these IS into business activities supporting the firm's strategy requires the combination of resources and capabilities (Drnevich and Croson 2013).

E-recruitment systems have seen an explosive expansion in the past few years (De Meo et al., 2007), allowing HR agencies to target a very wide audience at a small cost. Applicant

tracking systems (ATS) are now the standard for managing the recruiting process, by handling candidates' job applications and companies' job openings electronically. These systems are usually provided in the form of web applications, via Software as a Service model. Job openings from companies' ATS are often aggregated by internet "job board" services like Indeed and Career Jet that track millions of job openings and allow job seekers to perform simple keyword searches for positions in their preferred industry and location. Applicants typically apply for positions by uploading their resume, which is manually evaluated by expert recruiters. It must be noted though that a small fraction of overall applicants receives an offer or a call for a job interview. In (Ramar and Sivaram, 2010; Narmadha and Nagi, 2017) a study was performed at an unnamed industry, which concluded that on average only one out of 120 applicants got selected in a job opening, while the ratio of recruited candidates that made it to the interview phase was approximately one out of 20.

The findings of this study support the hypothesis that there is a positive association between the HR capability and firm performance as well as confirmed the mediating role of the HR capability in the relationship between e-recruitment and firm performance. These findings add confirming evidence to the suggestions by Ravichandran and Lertwongsatien (2005) and Mithas and Rust (2016) that there are positive relationships between IT, HR capability, and firm performance. The results provide empirical support for the notion that e-recruitment has the potential to improve firm performance when its capabilities are channelled to develop distinctive firm competencies. Using e-recruitment to improve activities that are integral to a firm's core competencies result in resource bundles that are unlikely to be easily imitated by competitors because of isolating mechanisms such as causal ambiguity and resource connectedness. For example, Wal-Mart's ability to perform better than most of its competitors in the retail industry is partly due to the complementarities between its business practices and its use of IT. Despite attempts by other retailers to copy Wal-Mart's IT systems, they fail to replicate its success in reaping returns from IT investment because of difficulties in understanding how IT and business capabilities interact to affect Wal-Mart's performance (Bharadwaj, 2000; Chae et al, 2014; Narmadha and Nagi, 2017)

#### **6.4. HRM Capabilities and firm performance**

The resource-based theory (Barney, 1991; Day, 1994; Calantone, et al., 2010; Sorin et al., 2018) provides theoretical underpinnings for our model and support for the relationships

among HRM capabilities and firm performance. Resource-based view (RBV) argues that firm's resources are determinants of firm performance (Barney 1991), a firm's valuable, rare, and non-imitable resources generate a competitive advantage and thereby an above average rate of return (Barney, 1991), and a firm depends fundamentally on its ability to have a distinctive , sustainable competitive advantage which derives from the possession and utilization of unique, non-imitable, non-transferable, firm-specific resources (Barney 1991).

Thus, RBV views the firm as an assemblage of resources and capabilities.

In the theoretical development of the RBV, the definition for organizational resources has been mixed. Early research tended to define organizational resources broadly, including assets, capabilities, organizational structure and culture, that are valuable for firms to conceive and implement strategies and thereby improve their outcomes (Barney, 1991). Recently, many researchers have recognized the need for distinguishing organizational resources from capabilities.

The advantage of an organization is more likely to be associated with capability-based advantage in a dynamically competitive environment (Helfat and Peteraf, 2003; Singh, 2017). Based on the RBV, business process capabilities are the most valuable resources that enable firms to sustain competitive advantage, as they are best protected by isolated mechanisms such as social complexity, path dependency and unique historical conditions (Day, 1994). Moreover, researchers have argued this capability as an important mediator in potentially realizing firm performance from the initiator of knowledge resources (Helfat and Peteraf, 2003; Haas and Hansen, 2005).

RBV also emphasizes capabilities as central to understanding firm's performance (Martin and Javalgi, 2016) and are key determinants to a firm's competitiveness and thus, its performance (Day, 1994; Krasnikov and Jayachandran, 2008; Singh, 2017). In the spirit of the resource-based view, capabilities should be valuable, difficult to produce, rare and non-substitutable (e.g., Barney, 1991; Day, 1994). Capabilities can be considered as the skills and competences a firm possess and are embedded within the organization that enable the development and leveraging of resources for enhanced firm performance (Krasnikov and Jayachandran, 2008; Singh, 2017). Past research suggests a significant relationship between capabilities and firm performance (Nath, et al., 2010). Greater innovation commercialization capability should therefore result in a higher firm performance.

Management literature has witnessed a debate on the effects of dynamic capabilities particularly with regards to market advantages and firm performance (Easterby et al., 2009). A large body of the literature acknowledges the role of dynamic capabilities in the realization

of firm strategy and in improving firm performance (Helfat et al., 2007; Singh, 2017). Furthermore, several theorists have argued that dynamic capabilities are a major source of competitive advantage (Makadok, 2001; Verona & Ravasi, 2003), and of organizational effectiveness (Oliver and Holzinger, 2008; Singh, 2017). In fact, dynamic capabilities contribute to reconfiguring and changing the firms bundle of resources, operational routines, and competencies and, in this regards, indirectly affect organizational performance (Zott, 2003; Sorin, et al., 2018). Similarly, dynamic capabilities enable organizations to renew their competencies and to strategically manage their resources and, as a result, to improve their performances (Teece, 2007). Even though Eisenhardt and Martin (2000) have suggested that dynamic capabilities may not lead to a sustainable competitive advantage or a superior firm performance, subsequent researches have concluded that such capabilities actually increase the firms agility and strategic flexibility and, as a result, enhance its performance (Zahra, et al., 2006; Singh, 2017).

The SEM results highlight the impact of internal and external determinants of e-recruitment on the Saudi firms' HR capacities. Moreover, our study indicates that HR capabilities influence on firm performance. Suvankulov (2013) has called for study on the impact of online recruitment on firms' performance. Our results indicate three distinct determinants of online recruitments that enhance HR capabilities and therefore, firms' performance. Internal determinants such as technology quality, service quality, and security assurance, external determinants such as empowered manager and member team, plan for e-recruitment, and HR and IT collaboration, and HRM capabilities were hypothesized to enhance the Saudi firms' performance. The SEM analysis shows that internal and external determinants of e-recruitment did indeed stimulate the Saudi firms' ability to acquire knowledge from external sources. The results also indicate that HR capabilities in Saudi Arabia firms influence on firm performance. This finding aligns with prior studies (e.g. Suvankulov; 2013; Kaleka and Morgan, 2017; Hosain, 2017).

## **6.5. Strengths of the Study**

Overall, the results indicate that e-recruitment play an important role in HR capability, and ultimately firm performance. One of the key strengths of this study is its examinations of the indirect relationship between e-recruitment and firm performance. Several studies have been done on other topics of e-recruitment, but they rarely used data collected from Saudi Arabia

context. No study was found in the e-recruitment literature that investigated the indirect effects of e-recruitment on firm performance.

A second strength of this study resides in its investigating e-recruitment determinants in relation to HR capability, and firm performance. E-recruitment is recognized by a majority in the literature as a powerful predictor of firm performance (e.g. Ravichandran & Lertwongsatien, 2005; Mithas & Rust, 2016; Singh, 2017; Sorin, et al., 2018; Ruel & Bondarouk, 2007). Examining e-recruitment in connection with HR capability, and firm performance, provides another way for HR managers to increase firm performance.

Lastly, although the Resource – Based View theory has been partially applied to e-recruitment, this study applied it to simultaneously investigate the effects of e-recruitment on firm performance, thus extending its applicability.

## **6.5 Theoretical Contributions**

The topic e-recruitment has been widely explored in the HR literature. Although it has not been deeply explored in the Saudi Arabia context of e-recruitment and how it affects HR capability and firm performance. This research therefore tried to enlighten this relationship in order to contribute to the e-recruitment literature.

The findings of this study contribute to the literature in the following ways. First, the study provides empirical support for a comprehensive model of e-recruitment determinants and its effect on firm performance. The motivations for this study emerge from the recommendations that appeared in the literature on e-recruitment benefit to any organization in different aspects, but many organizations have not fully accepted this method yet. E-recruitment has received limited attention in academic research from an organizational perspective. Researches on adopting Internet technology in recruitment are few despite the wide range of Internet by both job seekers and employers. This method is related to significantly lower costs for both job-seekers and recruiters. Organizations career sites, like Shell, Coca Cola and Nike, don't even offer the option to apply via email, these organizations work with online recruitment systems because of advantages for the applicants, and for the organization itself. Every day, about 4 million applicants open their browsers to search for jobs on the Internet. Especially among students it is totally normal to use the Internet in order to get informed about possible career perspectives. A study held by Ziesing (2013) conducted a survey of students and graduates in the US, Europe and Asia regarding their attitude towards online,

social and mobile recruitment found that 74% of job seekers use companies' career websites, and 94% of the respondents said that employers should in addition to the organization career website they should have a special page on at least one social network.

It is argued here that as Boxall (1996) asserts, the resource-based perspective implies the need to build strategic management processes. Therefore, the role of HR in increasing firm performance in firms significantly relates to the perception of the top management team and their HR capabilities. Moreover, it has been stressed that the integration of HR and strategy was greater when top managers viewed employees as strategic resources. Thus, since employees, especially owner managers of firms, play a similar if not a greater key role in developing business strategies in firms, primarily the study has focussed on the nature of the relationship between HR capabilities, and the performance of the firm. The study, therefore, aims to explore the employees view (perception) of their firms' HR capabilities and how in their view this relates to the performance of their business.

Our research moves beyond previous studies that focus on e-recruitment by correlating e recruitment with HR capability and firm performance. This study contributes by arguing that e-recruitment and HR capability has a positive relation towards firm performance, which conforms to previous studies in similar areas.

Apart from the re-examination of resource based theory in the online recruitment context, our study attempts to make some other fundamental contributions in understanding e-recruitment in the Saudi Arabia context. However, given that this is the first known test of resource based theory in the Internet recruiting domain, we recommend that future research be done to conduct additional tests of this theory.

This study contributes to HR literature, since, from the point of view of strategic management researchers; the RBV provides a conceptual framework in which to examine the role of HR as a source of competitive advantage. While, traditionally, the costs associated with the development of HR strategy have been regarded as an operating expense, if, in fact, human resources are a source of sustained competitive advantage, then these costs would be better considered as an investment in capital assets. The empirical results of our research also suggest that the way an organization manages its HR has a perceptible significant relationship with the organization's results, a revelation that supports the RBV, where business competitiveness is related, at least in part, to the investments in company- specific assets.

Previous research focuses on singular types of antecedents to e-recruitment, such as internal and external determinants. In advancing this literature, we posit that internal and external determinants interactively affect e-recruitment. The results related to the significant effect of

the interaction between internal and capability based HRM indicate that even though internal may help firms to employ resources that facilitate the development of opportunity-seeking (radical) and advantage-seeking (incremental) innovation, firms need to simultaneously establish organizational systems and structures that will support this orientation. Our research contributes to the HR capabilities literature by providing new insights into the mediating effects of HR capabilities on the interaction between e-recruitment and firm performance. Generally, while prior literature has focused on the identification of antecedents of e-recruitment and called for research on outcomes of online recruitment, our research shows that internal determinants is a mechanism of dynamic capability through which organizational resources developed in localized practices (e.g., HRM) can be integrated to elicit innovation capabilities that enable firms to generate superior performance.

These findings extend prior literature by showing, for the first time, how e-recruitment and HR capability emphasis jointly influence firm performance. They also provide important implications for practice, while suggesting the need for developing stronger theory (e.g., in Resource Based View) and more precise empirical tests in further work.

## 6.5 Practical Contributions

Practitioners can use the model to assess how e-recruitment may be used to improve firms' performance. It can also be used by IT producers and entrepreneurs to design and evaluate their products, as the variables included are those that drive firm performance.

Second, this study provides, for the first time, information about the effect of e-recruitment on HR capability, and firm performance. The association between e-recruitment and firm performance has not been investigated. Furthermore, results from (Melian-Gonzalez & Bulchand-Gidu, 2016) indicated that Information technologies (IT) have been recognized as one of the greatest forces improving firm performance.

The result from this study has generated information about the determinants of e-recruitment and its effect on HR capability and firm performance that can be valuable information for e-recruitment managers to obtain into their marketing strategy. As the e-recruitment industry is one of the most widely practiced e-business areas (Lee, 2011) this research can be of importance in order for e-recruitment managers to know where to allocate resources in order for them to attract and retain job seekers. Moreover, the findings of this research suggest that companies within the e-recruitment industry should focus on building technology quality, services quality, security assurance, empowered manager team, content of an implementation

plan for e-recruitment, HR and IT collaboration, job seeker trust in e-recruitment, organizational reputation, decentralization of selection decision, government objectives, and HR capability in order to differentiate themselves from competitors in the market. Nevertheless, the findings also showed that the main focus should be on the external determinants (e.g. job seeker trust in e-recruitment, organizational reputation) as it had the strongest relation towards e-recruitment. Given this information, e-recruitment managers should also think of strategies that could make job seekers that already acquired a job via their e-recruitment website to stay updated and make them follow the website in order to receive a higher traffic on the e-recruitment website.

For example, the core service of an online recruitment service is to act as an intermediary between recruiting companies and job applicants by posting companies' job announcements and collecting applicants' records. Enabling customers to submit their CV to a job board can be interpreted as a facilitating and mandatory service for receiving job offers, whereas secure payment is a mandatory facilitating service for online purchases. Facilitating services could also include customised search engines and archives, or help-functions and instructions that facilitate customers' access to the core service.

In order to be competitive, services have to create value for customers. This can be achieved by superior core and facilitating services, or by offering value adding supporting services. Supporting services of a job board could be to offer current job search related articles and links to other websites. Individual recommendations and the "1-Click" ordering offered by Amazon.com are also typical supporting services.

However, sustainable competitive advantage can only be achieved if the company has built an entire system that is difficult to replicate, like IKEA has done in brick-and mortar furniture retailing (Edvardsson et al. 2000; Simón and Esteves, 2015). Small incremental service developments, or "feature creeps" (Edvardsson et al. 2000, p. 91) differentiate the service only in the short run. For example, links to other websites, comic strips and public information are easy to copy by competitors. Furthermore, the value of supporting services such as articles and different types of information depends entirely on the applicant's need for and appreciation of the information content.

Instead of interacting face-to-face with service representatives, customers of eservices interact with a user interface<sup>2</sup>. The user interface, or site design, determines how services are delivered to customers and this can be expected to impact their evaluation of the core, facilitating and supporting services. If a website cannot be accessed, or if pages download

slowly, customers may not have the patience to wait or try again later (Dabholkar 2000; Simón and Esteves, 2015).

In the case of traditional service outlets, the service scape helps customers categorise the service (e.g. to distinguish a five-star hotel from a three-star) and it also affects their evaluation of service quality (Wagner 2000). Since customers cannot evaluate online services with respect to the furniture (shabby/elegant), or the cleanliness of the surroundings, online providers need other elements to signal the quality category of the service, or the target audience.

How the information content of the website is communicated to customers through the user interface is important for online evaluations (Grönroos et al. 2000). Although technical failures on websites are a serious problem (Meuter et al. 2000), we expect that companies are more likely to create customer value by means of their core, facilitating and supporting services than by the design of the user interface.

Practitioners considering introducing online recruiting and e-recruitment systems might feel apprehensive about the less consecutive nature of the recruitment tasks in the new process, and by the need to learn a new technology. However, this study does not reveal any specific problems for HR professionals using various e-recruitment technologies, and none of my respondents reported or complained about being forced to learn a lot of new technology. On the contrary, the e-recruitment systems were very easy to use, and when hosted by an external application service provider, were up and running in literally no time. However, as communication with applicants plays a more significant role in the new process, recruiters should be aware of the increased demands associated with this task. In particular, special attention should be given to activities related to Internet communication and automated mailing. This was a concern expressed by many recruiters, and two of the case organisations made extra resources and specially educated staff available to deal with the issues of online communication. With the increasing use of online social networking for recruitment purposes, the task of communicating with candidates becomes even more complex.

The results of the current study indicate that for the recruitment process to be successful, the strategy should incorporate HR capability to reach the desired target market, and not restrict to just e-recruitment.

Mol and Birkinshaw (2009: 1278) state that “firms stand to benefit from investing in their capacity for management innovation alongside their capacity for product and process innovation”. The results of this paper seem to support this idea. Therefore, the most important practical implication of this paper is that managers should be aware of the joint strategic

potential of OI and product and process IC for reinforcing the development of each to improve firm performance.

The current study has contributed to research on online recruitment through the development of a new model to assess effectiveness by linking perspectives from the applicant viewpoints to the recruitment source. From an organisational perspective, the model explores the relationship between online recruitment and its impact on HR capability, and the subsequent organization performance. The model developed can serve as a basis for firm performance evaluation. While a number of performance evaluation models have been proposed, these models assess firm performance in one or a few of the functional areas such as systems development, planning, or systems acceptance and use.

In recent years, much concern has been shown for the strategic involvement of the Human Resource (HR) and its effect on firm's performance (Analoui, 2002). The debate has led to the creation of a resource-based model of HRM (Boxall, 1996), identifying HR as being responsible for increasing organisational success (Kakabadse and Kakabadse, 2000) and a realistic indicator for the improved organisational effectiveness (Analoui, 2002). The resource based approach to strategic management considers HR as a unique source of competitive advantages of the firm (Story, 1998; Singh, 2017). It has been even suggested that there is a link between a firms' performance and the utilisation of its human resources (Baird and Meshoulan, 1998).

Amongst other contributions, the present study has established an empirical basis for examining the impact of the human resource capabilities and their involvement on increasing firm performance. As shown earlier, increasing the core competencies of the firm, especially its HR capabilities, leads to a highly successful performance of the firm. More specifically, the results support the claim that performance of firms is positively related to the HR competencies. Thus, any investment towards increasing human resource capabilities must be considered as a crucial and strategic factor, which in turn will increase the firm's performance. Hence, it can be recommended to practitioners and senior management that the investment made in increasing HR competencies ought not to be regarded as 'cost' rather it ought to be seen as a critical investment decision which will form a considerable factor in developing their organisations' capacity in strategic management. It can, therefore, be concluded that an investment to increase HR capabilities will result in successful achievement of its goals and objectives in a competitive landscape. There seems to be a strong and positive relationship present between the degree of HR involvement in the development and implementation of business strategy and that of the organisational

performance in the Saudi Arabia companies. In high performance firms, HR is more involved in strategic activities such as long range planning, revising HR systems and developing new HR systems. Thus, in order to increase firm performance and to benefit from HR capabilities, it is recommended that practitioners and firms' managers increase the involvement of the HR specialists in the process strategic management of their firms.

The result of the data analysis reveals that, the contribution of the human resources in the development and implementation of strategies is very much related to the managers' perception of HR as an important factor in a firm's performance. Overall, these results indicate that, human resources are more involved in strategic activities such as developing HR systems, strategy formulation, long range planning and revising HR systems, in those firms where, their managers' perceive HR as a key source of competitive advantage. Therefore, human resources as a factor for creating knowledge, play an important role in increasing a firm's performance and its competitiveness in high performance.

Our results suggest that firms pursuing internal and external determinants should be aware of the interaction between e-recruitment and HRM capabilities. Our findings are a reminder to managers that e-recruitment alone is not enough to improve firm performance and that they need to develop an appropriate HRM capabilities that can be incorporated with entrepreneurial orientations if the impetus for innovation activities is to be created. For example, firms may develop a supportive system from capability-based HRM which might see explorative behaviors such as creativity and risk-taking encouraged through autonomous work practices and teamwork.

our results indicate that e-recruitment is an appropriate mechanism through which firms integrate the benefits of HRM capabilities that enhance superior firm performance. Although not specifically hypothesized in our study, the direct and significant effect of e-recruitment on firm performance shown in our study suggests that managers should be aware that e-recruitment itself is a significant contributor to firm performance. Consequently, to enhance performance, managers need to develop innovation strategies, which are dual-focused.

In addition to the practical implications pertinent to HR managers and organisational change agents, the findings of this study have a number of implications for technology vendors and developers. Specifically, the findings of this study urge e-recruitment vendors and developers to: a) publicise the unique features of e-recruitment through marketing campaigns, webinars, and workshops in order to familiarise HR decision makers with the utilitarian value of their products and services. b) Bear in mind that system functionality is as important as system

characteristics (i.e., user interface design, navigability, or system responsiveness) to the organisational end-users. In other words, of primary importance is to develop a technology that could deliver the functionality that HR requires in order to accomplish HR tasks.

By providing empirical evidence that e-recruitment support for core competencies has a positive effect on firm performance, this study highlights that IS managers have to do more than invest in the latest technologies or develop a strong IS department. The results indicate that IS managers have to clearly understand the strategic thrust of the organization and institute mechanisms to ensure that IS capabilities are channelled toward areas of importance to the organization. Among other things, this requires close interactions with business managers and co-opting business leaders to play an active role in IT deployment decisions.

## **6.6 Limitations and Future Research**

The current study contributed a first overview to what extent the use of online recruitment leads to improving in firm performance. But there is still a need for further research. A limitation for this study is the lack of information. As E-recruitment is a new phenomenon, there is not a widespread of empirical studies, confining the studies to be opinionated to the first investigators. The unfolding of this topic as more studies are explored will show how recruitment behaviour will develop over the years.

One major limitation of this study is that it is based on the self-assessed behavioural biases, traits, and decision-making of each respondent. This increases the subjectivity of the data. It is important that future research could be directed towards collecting more objective data, as far as these crucial parameters are concerned.

Other limitations associated with this study are the use of self-report data, and some measurement issues. The use of self-report data increased the likelihood of mono method bias. Informants providing data for both dependent and independent variables may have implicit theories or other biases that artificially inflate the relations between the variables. Future studies should gather data from multiple sources over time to limit the potential for bias and obtain multiple survey responses from sample firms.

When asking if the respondents had a specific e-recruitment website in mind when answering the questions made sure they were relating to a specific e-recruitment website. However, it would also be interesting to see if groups who searched for jobs in different sectors would perceive the e-recruitment websites differently, and therefore showing different intentions to

use depending on what type of job they are looking for. This could give some insight for online companies of what sectors to explore more on.

A final promising area of research is to determine how the Internet fits into the overall recruiting programs of organizations. In other words, does the information gleaned from an organization's website have a weaker or stronger impact on potential applicants than campus recruiters, company referrals made by friends, and newspaper advertisements? Likewise, the influence of company perceptions of climate and culture in the recruitment process also need to be weighed against more tangible factors (e.g., salary and benefits) when applicants evaluate a prospective employer. Furthermore, research on e-recruitment websites has been scarce and the adopted measures to this context could have been more suitable for the context. Regarding the aspect of e-recruitment and if the individual have acquired a job from an e-recruitment website before gave a negative result. Meaning in an e-recruitment context, keeping satisfied customers is a challenge, which could be further studied.

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## Appendix (A): The Covering Letter and Questionnaire

### E-Recruitment Questionnaire: Applicants

Dear respondent, the purpose of this survey is to investigate the direct and indirect relationships between e-recruitment and firm performance, and the mediating role of human resources capabilities. The study is a part of the PhD study at the University of Plymouth. This is a confidential questionnaire and all information will be treated with strict confidence. Information will not be used for any other purpose.

E-recruitment can be defined in many ways as the process of personnel recruitment using electronic resources, in particular the Internet. For the purposes of this questionnaire, **please focus on accessibility, the features of the e-recruitment systems, efficiency, and quality and security assurance.** This is not a test and there are no right or wrong answers. Please don't leave any blanks.

1. Gender	Male	Female	
2. Age (optional)			
3. Education			
4. Number of Years at this job			
5. Did you apply this job online?	Yes	No	
6. Did anyone apply on your behalf?	Yes	No	
7. How did you find out about this job vacancy?			
Company's Website	Newspaper	Internet Sites	Recruitment Fair
Other (please specify) _____			

8. Q1 Please answer the following questions, before joining the current company. Please estimate the number of times you used the following. (If you did not access these media, please enter NA in the NEVER box).

		Never	Once a week	Several times a week	Once a day	Several times a day
a)	Search engines including Google.com etc.					
b)	Job recruitment Websites including www.jobs.ac.uk					
c)	Graduate recruitment fairs online					

d)	Recruitment agencies					
e)	Posting CV online					
f)	Job Matching sites					
g)	Browsing Government websites					
h)	Checking Social Networks					
i)	Searching former College/University Website					
j)	Other (please specify)					

**Q9.** If you have used the above media to search for employment, please could you answer the following questions. If not just put NA in the strongly disagree box. Tick one box after each of the statements below to indicate how much you agree or disagree with each statement. Please do not leave any blank.

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
a	I find searching jobs online difficult					
b	I find filling in application difficult					
c	I find making decisions online difficult					
d	I find e-recruitment useful					
e	I find jobs online difficult to follow					
f	I find e-recruitment confusing					

**Q10.** Please answer the following questions. What influenced your decision to apply for a job to this particular company? Did you access the following information online? Please rate their importance.

		Never	Less Important	Of some importance	Important	Very important
a)	Age of the organisation					
b)	Staff strength					
c)	Sector					
d)	Annual turnover					
e)	Online job boards					
f)	Training					
g)	Staff Development and Support					
h)	The management structure					
i)	Company ownership					

		Never	Less Important	Of some importance	Important	Very important
j)	<b>Others: Please state</b>					

**Q11.If you have used the e-recruitment when applying for this particular post, please could you answer the following questions? If not just put NA in the strongly disagree box. Please tick one box after each of the statements below to indicate how much you agree or disagree with each statement. Please do not leave any blank.**

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
a	I found the company's websites with all information I needed to make a decision					
b	I found the company website accessible and user-friendly					
c	I found the website trustable					
d	I found the website efficient and I could download information at the desirable speed.					
e	I found the website transparent					
f	I found the corporate image appealing					

**Q12.**Please tick one box after each of the statements below to indicate how much you agree or disagree with each statement. Please do not leave any blank.

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
a	<b>The E-recruitment system is the most effective way of recruitment.</b>					
b	<b>I feel that the E-recruitment is fair and free of bias</b>					
c	<b>I feel that the information on websites are enough for me to make a decision about an employer</b>					
d	<b>The job descriptions were clearly stated during application.</b>					
e	<b>HR support is available during the application process</b>					
f	<b>The security is maintained at all times. Personal data are protected.</b>					
g	<b>An effective E-recruitment system has an impact on the quality of employees</b>					
h	<b>An effective e-recruitment system can lead to firm performance.</b>					
i	<b>It is more cost-effective to apply online.</b>					
j	<b>I received feedbacks from the company's HR</b>					
k	<b>The feedbacks received were on time and relevant</b>					

**Q13:** Please describe how you would compare your company's financial performance relative to that of other similar companies in the same industry over the past 3 years by indicating your perception of the company's financial performance on a five-point Likert scale ranging from 1= Much Worse to 5= Much Better, as below:

	Much worse	Worse	About the same	Better	Much better
<b>Marketing</b>	1	2	3	4	5
<b>Growth in sales</b>	1	2	3	4	5
<b>Market share</b>	1	2	3	4	5
<b>Profitability</b>	1	2	3	4	5

**Thank you for completing this questionnaire about the accessibility, quality and the impact of the E-recruitment system.**

**Pelasse email this questionnaire to:**

**[sulaiman.alateyah@plymouth.ac.uk](mailto:sulaiman.alateyah@plymouth.ac.uk)**

## الملحق (أ): خطاب التعريف واستبيان

### استبيان عن التوظيف الإلكتروني: مقدمو الطلبات

عزيزي المتقى، إن الغرض من هذه الدراسة هي فحص العلاقات المباشرة وغير مباشرة بين التوظيف الإلكتروني والأداء الثابت ودور الوساطة لقدرات الموارد البشرية. والدراسة عبارة عن جزء من دراسة دكتوراه من جامعة بلايموث. يعد هذا الاستبيان سري وسيتم التعامل مع كافة المعلومات بكامل السرية، ولم يتم استخدام المعلومات في أي أغراض أخرى.

من الممكن تعريف التوظيف الإلكتروني بطرق مختلفة فهي العملية التي يتم من خلالها توظيف الموظفين باستخدام المصادر الإلكترونية، وخاصة الانترنت. ولأغراض هذا الاستبيان، برجاء التركيز على سهولة الوصول ومزايا نظام التوظيف الإلكتروني والكفاءة والجودة وضمان الأمان. هذا ليس باختبار ولا يوجد إجابات صحيحة أو خاطئة، برجاء عدم ترك فراغات.

١. النوع	ذكر	أنثى
٢. العمر (اختياري)	.....	.....
٣. التعليم	.....	.....
٤. عدد سنوات العمل في هذه الوظيفة	.....	.....
٥. هل قمت بالتقديم على هذه الوظيفة من خلال الانترنت	.....	.....
٦. هل قم أحد ما بالتقديم نيابة عنك	.....	.....
٧. كيف علمت بشأن هذه الوظيفة	.....	.....
موقع الشركة	جريدة	موقع الانترنت
من جهة أخرى (برجاء التوضيح):	.....	.....
معرض التوظيف	جريدة	موقع الانترنت

٨. السؤال الأول: برجاء الإجابة عن الأسئلة التالية، قبل الانضمام للشركة الحالية. يرجى تحديد كم عدد المرات التي قمت بها باستخدام ما يلي.

( في حالة عدم استخدام للوسائل التالية، يرجي وضع غير متاح في خانة مطلاً )

مطلاً	مرة أسبوعياً	مرة يومياً	عدد مرات يومياً	عدد مرات أسبوعياً	
أ محركات البحث بما فيها جوجل وغيرها					
ب موقع التوظيف الإلكتروني بما فيها <a href="http://www.jobs.ac.uk">www.jobs.ac.uk</a>					
ج معارض توظيف الخريجين الإلكتروني					
د وكالات التوظيف					
هـ وضع لسيرة الذاتية على الانترنت					
و موقع مطابقة الوظائف					
ز تصفح الواقع الحكومية					
ح موقع التواصل الاجتماعي					
ط البحث في موقع الكلية/ الجامعة					
ي جهة أخرى ( يرجى التحديد )					

السؤال التاسع: في حالة أن سبق لك استخدام أي من الوسائل المذكورة بالأعلى للبحث عن وظيفة، برجاء الإجابة على الأسئلة التالية وفي حالة عدم وجود إجابة قم بوضع غير متاح في خانة أرفض بشدة. قم بوضع علامة بعد كل من العبارات التالية لتوسيع مدى قبولك أو رفضك لكل عبارة، برجاء عدم ترك أي فراغ

أوافق بشدة	أوافق	غير موافق أو رافض	أرفض	أرفض بشدة	
					أ- أجد صعوبة في البحث عن الوظائف خلال الانترنت
					ب- أجد صعوبة في ملئ طلبات التقديم
					ج- أجد صعوبة في اتخاذ القرار على الانترنت
					د- أرى أن التوظيف الإلكتروني مفيد
					هـ- أجد صعوبة في متابعة الوظائف على الانترنت
					و- أعتقد أن التوظيف الإلكتروني محير

السؤال العاشر: برجاء إجابة الأسئلة التالية. ما الذي يؤثر على قرارك في التقديم على وظيفة في هذه الشركة خاصة؟ وهل قمت بالدخول على المعلومات التالية من خلال الانترنت؟ برجاء تقييم أهميتها.

مهم جدا	مهم	له بعض الأهمية	قليل الأهمية	مطلقا	
					أ- عمر المؤسسة
					ب- قوام الموظفين
					ج- القطاع
					د- المبيعات السنوية
					هـ- لوحات الوظائف على الانترنت
					و- التدريب
					ز- تطوير ودعم

					الموظفين	
					هيكل الإدارة	ح
					ملكية الشركة	ط
					أخرى: برجاء التحديد	ي

السؤال الحادي عشر: إذا قمت باستخدام التوظيف الإلكتروني عند قيامك بالتقديم على هذا المنصب بالتحديد، فهل يمكنك الإجابة على الأسئلة التالية؟ وإن لم تقنع فقط قم بوضع غير متاح في خانة أرفض بشدة. قم بوضع علامة بعد كل من العبارات التالية لتوسيع مدى قبولك أو رفضك لكل عبارة، برجاء عدم ترك أي فراغ.

أوافق بشدة	أوافق	غير موافق أو رافض	أرفض	أرفض بشدة		
					ووجدت على موقع الشركة كل المعلومات التي أحاجها لاتخاذ القرار	أ
					ووجدت موقع الشركة سهل الدخول وسهل الاستخدام	ب
					وبدت أن الموقع موثوق به	ج
					يتسم الموقع بالكفاءة وقمت واستطعت تحميل المعلومات بالسرعة المرغوبة	د
					يتسم الموقع بالشفافية	هـ
					لقد وجدت صورة الشركة جذابة	و

السؤال الثاني عشر: قم بوضع علامة بعد كل من العبارات التالية لتوضيح مدى قبولك أو رفضك لكل عبارة، برجاء عدم ترك أي فراغ.

أوافق بشدة	أوافق	غير موافق أو رافض	أرفض	أرفض بشدة	
					نظام التوظيف الإلكتروني أكثر فعالية للتوظيف
					أرى أن التوظيف الإلكتروني عادل وخالي من المحاباة
					أعتقد أن المعلومات على المواقع كافية لـي لاتخاذ القرار عن صاحب العمل
					وصف الوظيفة كان واضح أثناء التقديم
					دعم الموارد البشرية متاح أثناء عملية التقديم
					درجة الأمان محفوظة في جميع الأوقات، والمعلومات الشخصية محمية
					نظام التوظيف الإلكتروني الفعال يكون له أثر على جودة الموظفين
					نظام التوظيف الإلكتروني الفعال يؤدي إلى الأداء الثابت
					يكون التقديم عبر الانترنت أكثر فعالية من حيث التكلفة

					استلمت تعقيبات من الموارد البشرية للشركة	ي
					التعقيبات المستلمة كانت في الموعد المحدد وذات صلة بالموضوع	ك

السؤال الثالث عشر: برجاء تحديد كيف يمكنك مقارنة الأداء المالي لشركتك بالنسبة للشركات الأخرى في نفس الصناعة خلال الثلاث أعوام السابقة من خلال منظورك عن الأداء المالي للشركة على مقياس ليكرت من 1 = أكثر سوءا حتى 5 = أفضل كثيرا، كما يلي:

أفضل كثيرا	أفضل	تقريبا مماطلة	سيء	أكثر سوءا	
					التسويق
					الزيادة في المبيعات
					الحصة السوقية
					الربح

نشكركم لإكمال الاستبيان بخصوص سهولة الدخول والجودة وأثر نظام التوظيف الإلكتروني.

برجاء إرسال الاستبيان على البريد التالي:

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**Appendix B: Tables for Non-response Bias Test**

	Independent Samples Test			
	Levene's Test for Equality of Variances		t-test for Equality of Means	
	F	Sig.	Sig. (2-tailed)	Mean Difference
TQ1	0.201	0.479	0.393	-0.341
TQ3	0.725	0.184	0.393	-0.341
SQ1	1.123	0.058	0.272	-0.522
SQ3	0.033	0.642	0.272	-0.522
SA1	3.026	0.012	0.935	-0.168
SA2	0.333	0.623	0.934	-0.168
EMP2	0.857	0.315	0.462	-0.566
EMP3	0.331	0.522	0.462	-0.566
PLA1	3.229	0.019	0.671	0.310
PLA2	0.182	0.728	0.671	0.310
PLA3	2.363	0.081	0.436	0.267
HRM2	0.836	0.212	0.436	0.267
TRU2	0.283	0.723	0.577	0.205
TRU3	0.643	0.314	0.576	0.205
REP2	1.235	0.037	0.316	0.622
REP3	0.478	0.328	0.315	0.622
DEC3	0.392	0.748	0.719	-0.217
GOV1	1.920	0.024	0.719	-0.217
GOV2	0.374	0.293	0.481	0.385
GOV3	0.859	0.839	0.481	0.385
BAL2	0.582	0.062	0.576	-0.298
TAL2	0.278	0.473	0.576	-0.298
TAL3	0.473	0.574	0.348	-0.432
ALG2	0.384	0.067	0.348	-0.432
LED2	0.049	0.217	0.134	-0.626
PER2	0.485	0.094	0.133	-0.626
PER3	0.172	0.694	0.467	-0.523
PER4	0.473	0.584	0.467	-0.523
			0.684	-0.386
			0.684	-0.386
			0.264	-0.473
			0.367	-0.472
			0.568	-0.410
			0.384	-0.074
			0.283	-0.832

**Appendix C: Tables for Common Methods Bias Test**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %

1	32.712	33.251	33.251	32.712	33.251	33.251
2	7.392	11.232	43.483			
3	7.233	9.049	52.532			
4	7.127	8.450	60.982			
5	6.363	6.405	67.387			
6	5.870	6.213	73.600			
7	5.564	5.582	79.182			
8	5.218	5.235	84.417			
9	4.314	3.943	88.360			
10	3.933	3.211	91.571			
11	2.861	2.427	93.998			
12	2.819	1.253	95.248			
13	1.780	0.847	96.088			
14	1.662	0.736	96.818			
15	1.471	0.671	97.488			
16	1.432	0.593	98.078			
17	1.335	0.475	98.548			
18	1.183	0.239	98.778			
19	0.841	0.204	98.978			
20	0.810	0.185	99.458			
21	0.806	0.083	99.538			
22	0.723	0.074	99.808			
23	0.711	0.071	99.878			
24	0.680	0.062	99.838			
25	0.632	0.051	99.888			
26	0.598	0.050	99.898			
27	0.539	0.047	99.908			
28	0.433	0.044	99.968			
29	0.401	0.039	99.971			
30	0.317	0.039	99.973			
31	0.283	0.037	99.975			
32	0.171	0.033	99.900			
33	0.130	0.032	99.210			
34	0.127	0.031	99.010			
35	0.120	0.032	99.023			
36	0.118	0.029	99.023			
37	0.117	0.027	99.047			
38	0.116	0.026	99.482			
39	0.115	0.024	99.283			
40	0.130	0.021	99.203			
41	0.102	0.020	99.233			
42	0.101	0.018	99.218			
43	0.091	0.017	99.241			
44	0.062	0.012	99.108			
45	0.028	0.013	99.020			
46	0.021	0.012	100			

**Appendix D. Descriptive statistics and normality tests of the constructs in the model**

Statistics	Mean	S.D.	Corrected item-total correlation	Skewness	Kurtosis
<b>Technology Quality (TQ)</b>					
TQ1	4.7	0.83	0.52	-0.34	0.63
TQ2	4.4	0.80	0.70	-0.20	-0.43
TQ3	4.8	0.79	0.56	-0.41	0.63
TQ4	4.2	0.73	0.63	-0.36	0.45
<b>Service Quality (SQ)</b>					
SQ1	3.9	0.78	0.64	-0.47	0.50
SQ2	3.6	0.73	0.56	-0.34	0.24
SQ3	4.3	0.70	0.63	-0.50	0.57
SQ4	4.2	0.81	0.59	-0.54	0.34
SQ5	3.8	0.78	0.57	-0.64	-0.4
SQ6	4.4	0.80	0.53	-0.47	-0.47
<b>Security Assurance (SA)</b>					
SA1	4.9	0.79	0.53	-0.49	0.43
SA2	4.3	0.84	0.48	-0.47	0.40
SA3	4.8	0.87	0.60	-0.32	0.59
<b>Empowered manager and members team (EMP)</b>					
EMP1	4.5	0.80	0.63	-0.54	0.54
EMP2	4.2	0.84	0.58	-0.58	0.39
EMP3	4.3	0.83	0.64	-0.45	-0.45
EMP4	4.9	0.73	0.57	-0.64	0.49
<b>Content of a plan for implementation of e-recruitment (PLA)</b>					
PLA1	3.8	0.73	0.71	-0.40	0.54
PLA2	4.3	0.59	0.62	-0.34	-0.45
PLA3	4.9	0.68	0.56	-0.54	0.39
PLA4	4.5	0.70	0.58	-0.44	0.48
<b>Job seeker Trust of E- Recruitment (TRU)</b>					
TRU1	4.5	0.82	0.57	-0.53	-0.54
TRU2	3.9	0.79	0.63	-0.48	-0.49
TRU3	4.4	0.80	0.61	-0.30	0.53
TRU4	4.3	0.82	0.68	-0.13	0.73
<b>Organisational Reputation (REP)</b>					
REP1	4.8	0.84	0.63	-0.74	0.45
REP2	4.3	0.79	0.47	-0.34	0.48
REP3	4.8	0.94	0.73	-0.54	0.69
<b>Government objectives (GOV)</b>					
GOV1	4.8	0.71	0.54	-0.47	0.73
GOV2	4.0	0.77	0.69	-0.49	0.39
GOV3	3.9	0.57	0.47	-0.67	-0.48
GOV4	3.7	0.73	0.54	-0.36	0.39
<b>E-recruitment (E-REC)</b>					
E-REC1	3.9	0.80	0.70	-0.24	0.54
E-REC2	4.4	0.84	0.68	0.57	0.43
E-REC3	4.0	0.88	0.69	0.48	0.54
<b>Leadership and management capability (LED)</b>					
LED1	3.9	0.79	0.68	-0.38	-0.59
LED2	4.1	0.83	0.74	-0.37	-0.48
LED3	4.8	0.89	0.71	-0.63	0.29
LED4	3.7	0.76	0.73	-0.48	0.43
<b>Firm Performance (PER)</b>					
PER1	4.3	0.83	0.73	-0.64	0.69
PER2	4.9	0.91	0.64	-0.58	0.78

PER3	4.8	0.79	0.71	-0.48	0.74
PER4	4.1	0.83	0.69	-0.50	0.61