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The Impact of Social Media Usage for Work Purposes on Innovation in SMEs: The Role of Human Capital and Knowledge Sharing

Alghamdi, Omar Aydh

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THE IMPACT OF SOCIAL MEDIA USAGE FOR WORK PURPOSES ON INNOVATION IN SMEs: THE ROLE OF HUMAN CAPITAL AND KNOWLEDGE SHARING.

By

OMAR AYDH ALGHAMDI

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Abstract

With the advent of the technology era, social media is considered a useful platform that has contributed actively to social interaction and a wealth of knowledge for both individuals and groups. Many organisations have begun to take into consideration the benefits of such platforms. However, there remains very limited understanding as to social media usage for work purposes in the organisational context. This study therefore investigates the debate surrounding whether or not the use of social media for work purposes adds value to firms. This is has been done by examining the impact of social media usage on innovation through knowledge-sharing and human capital, and the role of the overall perceived usefulness of SMU experience and perceived supervisor support in enhancing the adoption of social media for work purposes. The theoretical framework of this study was based on two theories, namely social capital and knowledge-based view.

The positivism philosophy had been adopted in this study, with a sample size of 506 cases, all of which have been gathered from SMEs in Saudi Arabia. These were analysed through a multivariate analysis using a variance-based statistical technique known as 'Partial Least Squares—Structural Equation Modelling'.

The findings indicate that social media usage, notably for work purposes, has a positive impact on innovation through the effect of both mediators, i.e. knowledge sharing and

human capital, as well as the overall perceived usefulness of social media usage experience and supervisor support, which have had a positive impact on social media adoption in Saudi Arabian SMEs.

This study has developed a comprehensive model that contributes to the body of knowledge on the value added by social media usage in the workplace. In addition, the study has also contributed to human capital development and the knowledge sharing process, thus leading to innovation success and competitive advantages for SMEs.

Dedication

I dedicate this thesis to

To my parent who consented extraordinary sacrifices to help me fulfil my aspirations.

To my wife and children who were tolerant and sacrifice to help me during my study

To my brothers and sisters,

To the soul of Dr Ibrahim Elbeltagi who supported me

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List of Abbreviations

Abbreviations	Full term
SMU	Social Media Usage
SMUWP	Social Media Usage for Work Purposes
KS	Knowledge Sharing
KSD	Knowledge Sharing- Donation
KSC	Knowledge Sharing- Collection
HC	Human Capital
INN	Innovation
PPS	Perceived Supervisor Support
PUS	Perceived Usefulness of Social media usage
KBV	Knowledge Based View
SCT	Social Capital Theory
RBV	Resource Based View
TAM	Technology Acceptance Model
SMEs	Small and Medium Enterprises
APC	Average Path Coefficient
ARS	Average R-squared
AVE	Average Variance Extracted
AVIF	Average Variance Inflation Factor

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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 Graduate Committee.

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

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1 CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter introduces the study, firstly by presenting a concise background to the issues under consideration, and secondly by giving insight into the research problem. Thirdly, the research gap and contribution are highlighted. Thereafter, the research aim and objectives are provided. Finally, the study context and thesis structure are specified.

1.2 Research Background

In line with the significant developments and subsequent competitiveness made in terms of technology, SMEs have come to experience a number of management-related obstacles, namely through the need to present something new and valuable, including processes, products, services and structures (Uden et al., 2015; Devos et al., 2014; Lindermann, 2009). Innovative product and process development has become recognised as fundamental in terms of both achieving and maintaining competitiveness within the global domain (Akhavan & Hosseini, 2016; Miron et al., 2004). In this vein, it is noted that innovation is fundamental for those organisations aiming at identifying their place in the market with emphasis placed on achieving long-term survival. In more recent times, there has been growing recognition of the power of innovation for SMEs (Devos et al., 2014; Salavou et al, 2004). It is noted that innovation, in this regard, warrants the advancement, development and thinking surrounding the best practices, as well as the overall capacity to enable and encourage organisational learning, in addition to bringing together and adopting ideas and knowledge garnered from a number of different sources and into new situations (Hislop, 2013). The resource-based view adopted by the organisation (Barney, 2001), as well as the knowledge-based view (Grant, 1997), considers knowledge to be amongst the most critical of business-related assets, as well as a key strategic resource contributing significant value to innovation.

In this regard, it is commonly acknowledged that critical knowledge can be created from within the firm (Nonaka, 1994). Nonetheless, environments, technologies and rules of competitiveness, all of which are seen to be undergoing significant change at a dramatic pace, hinder firms from internally creating the knowledge deemed necessary. Garnering knowledge and information from a number of different sources in a firm's external setting is seen to be at the core of innovation, meaning organisations are well positioned to enhance their innovative capabilities and knowledge through enhancing human capital and accordingly leveraging the skills of others through knowledge transfer, not only across the boundaries of the organisation but also inside (Evans et al., 2013; Hinds et al., 2001).

Garnering new insight commonly stems from the collaboration of people in brainstorming ideas and opinions, and sharing knowledge (Newell et al., 2002). One of the most fundamental conditions in terms of both the gathering and sharing of information is therefore the creation of significant and applicable inter and intra-organisation social networks (similarly referred to as advice networks, informal networks and support networks), as highlighted by Pirkkalainen & Pawlowski (2014). Such networks may be recognised as pivotal underpinning business-related structures in the sharing and transfer of effective and valuable knowledge (Bosua & Scheepers 2007), and may be seen to comprise those individuals with whom a person establishes and maintains communication, including bankers, customers, family members, partners, professionals and suppliers (Rejeb-Khachlouf & Mezghami, 2011; Granovetter, 1982; Inkpen & Tsang 2005; McPherson et al., 2001). It is common for social networks to be supported through the use of Web 2.0 technologies, including social media (Evans et al., 2013). As a direct result in this regard, it was established by Meroño-Cerdan et al. (2008) that the majority of

collaborative technologies are positively linked with innovation within and across SMEs. Accordingly, social media, when recognised and utilised as a collaborative instrument, may be applied in order to share and distribute individual experience and innovation across the firm (Bhatt et al., 2005; Soto-Acosta et al., 2010), and therefore could be well positioned to enable the application of knowledge for the creation of new processes and/or products. In the view of Moqbel (2012), social media is able to improve innovation levels owing to the fact it can facilitate staff in gaining access to the most suitable resources in such a way that helps to ensure innovation success. Moreover, social media application is able to present the opportunity to turn business-wide knowledge-sharing in the work environment into an ongoing online knowledge exchange rather than an intermittent, centralised knowledge management process (Oostervink et al., 2016; Majchrzak et al., 2013). In this regard, social media has been recognised as providing organisational knowledge-sharing between co-workers who may be seen to be geographically dispersed (Evans et al., 2013; Maulana, 2014). Therefore, the members of a firm may be able to create and maintain a varied relationship with different people, which subsequently can facilitate and encourage knowledge-exchange and the garnering of new ideas and insights with those people positioned to share their knowledge and experience (Beck et al., 2014). Accordingly, it is possible to achieve an increase in knowledge sharing and human capital. As such, SMEs need to consider and examine the possible advantages to be garnered through social media tools application in the use, enabling and application of their existing knowledge, especially when seeking to enhance human capital and innovation in an efficient and effective way (Soto-Acosta et al., 2017).

1.3   Research problem

There is a critical need for SMEs to enhance innovation in order to achieve competitive advantages (Rehm & Goel, 2017). Indeed, innovation is recognised as a combination of two main factors, namely new ideas and their implementation (Martin & Matlay, 2003). Such factors may be viewed as the critical challenges faced by SMEs (Humphreys *et al.*, 2005); therefore, knowledge-sharing needs to be enhanced within the context of SMEs by external knowledge so as to gain new ideas alongside the activation role of internal knowledge so as to create new knowledge and generate new ideas that support organisational innovation (Martin & Matlay, 2003; Dalkir, 2013; Von Briel & Recker, 2017). Furthermore, on the other hand, human capital also contributes to innovation through its important role in supporting the application of such new ideas (Kadir *et al.*, 2017). However, the development of HC has become a challenge for SMEs as they are suffering from the costs of workforce development due to fearing that employee leaks and turnover, especially when investing money on their training and learning (Saleh & Ndubisi, 2006; Hayton, 2003; McAdam & Reid, 2001; Kadir *et al.*, 2017). Therefore, it can be observed from the advantages of social media, as mentioned in the previous sections, that social media can be considered a learning and training platform that contains a significant pool of knowledge from wide and varied resources, as well as a free systems (Bosman *et al.*, 2016). Therefore, Social media can contribute solutions to such obstacles and add real value to SMEs. Nonetheless, the topic remains controversial owing to there being much discussion and debate amongst business professionals and academics in terms of whether or not SMU is able to garner valuable advantages in the work environment. Some such works suggest that social media adoption, by organisational members, does nothing but waste valuable resources, including time and manpower, whilst similarly causing labour productivity levels to

decline (O'Murchu *et al.*, 2004; Rooksby *et al.*, 2009; Nucleus, 2009; Shepherd, 2011); on the other hand, however, it is held by some that social media use can achieve job performance improvements, in some part owing to the successful efforts of employees to achieve a work–life balance (Li & Bernoff, 2008; Bennett *et al.*, 2010; Leidner *et al.*, 2010; Patel & Jasani, 2010; Moqbel *et al.*, 2013). However, most of these studies, which maintain the value of social media usage through a psychological lens, are believed to have neglected other potential facilities of social media that can be used for work purposes, such as knowledge management systems, learning platform, online social capital, external knowledge resources and so on, which ultimately can add value to the organisation through their effects on innovation, knowledge-sharing and human capital. Therefore, this is the main problems needing to be solved in this research, whilst also contributing to the body of knowledge through examining the impact of social media usage for work purposes on innovation, notably through the mediating role of KS and HC, and the effect of PSS and PSU on SMUWP adoption by SMEs.

1.4   Research gap and contribution

A number of different limitations and restrictions have been established and therefore managed in the present work. The following sections provide a summarised overview of these limitations. Primarily, as can be seen from the previous section, social media usage is very important for organisations with regards their capacity to enhance innovation, knowledge-sharing and human capital. In addition, empirical studies have argued that the use of social media by organisational members is an enabler of KS (Marouf, 2007; Amayah, 2013; Kim *et al.*, 2013), HC (Lytras & Kurilovas, 2014; Roomi, 2013; Smith *et al.*, 2011; Marvel & Lumpkin, 2007), whilst also enhancing innovation (Popa & Martinez-Conesa, 2017; Leonardi, 2014; Moqbel *et al.*, 2013; Kärkkäinen *et al.*, 2010; Liao & Wu, 2010). Furthermore, KS is an antecedent to

innovation (Andreeva & Kianto, 2011; Ferraresi *et al*., 2012; Porzse *et al*., 2012), with HC also viewed as an antecedent to innovation (Popa & Martinez-Conesa, 2017; Smith *et al*., 2011; Marvel & Lumpkin, 2007).

Despite the extensive number of studies arguing that social media usage, knowledge-sharing, human capital and innovation are important to organisations, there nonetheless remains a lack in the literature regarding the impact of social media usage in supporting knowledge-sharing, human capital and innovation, mainly in the specific professional environment of SMEs; thus, no study has been conducted thus far to consider all variables used in this study.

Secondly, social media contains a vast pool of various knowledge and media richness (Kaplan & Haenlein, 2010). In addition, it is considered a learning and training platform (García-Peñalvo *et al*., 2012). Furthermore, social media possesses millions of different users and is therefore recognised as a source of online social capital (Raza *et al*., 2016; Ellison *et al*., 2014).

In parallel, the need for information systems is critical for any organisation. However, this is recognised as one of the obstacles confronted by SMEs in comparison with large enterprises (Rehm & Goel, 2017). This is due to the limited budget, size and number of employees (Sin Tan *et al*., 2010; Mutula & van Brakel, 2006). In addition, HC development has become recognised as a challenge for SMEs (Saleh & Ndubisi, 2006; Hayton, 2003; McAdam & Reid, 2001). Therefore, social media, as a free system, including the aforementioned advantages, can contribute to filling such gaps. However, the empirical investigation of the relationship between social media and human capital remains under question (Lytras & Kurilovas, 2014).

Thirdly, business professionals and academics continue to debate the perceived value associated with social media use by staff in the context of organisations, with some stating that presenteeism is an issue, which may be defined as being in the workplace but operating at lower-than-optimal capacity, with those concerned in this regard suggesting that social media application by business members results only in a waste of resources, notably time and, as a result, declined labour productivity (O'Murchu *et al.*, 2004; Nucleus, 2009; Rooksby *et al.*, 2009; Shepherd, 2011), whereas others hold the opposing view that job performance improvements can be achieved (Li & Bernoff, 2008; Bennett *et al.*, 2010; Leidner *et al.*, 2010; Patel & Jasani, 2010; Moqbel *et al.*, 2013). However, such studies maintaining the view that social media usage value through a psychological lens have failed to consider social media adoption for work purposes, such as knowledge management systems, learning platform, online social capital, external knowledge resources and so on. Therefore, there is a pressing need to complete a comprehensive study, not only centred on examining the impacts of social media usage for work purposes on innovation, knowledge-sharing and human capital, but also in consideration to the extent to which usage can be adopted by SMEs, as well as the most critical factors influencing employees' acceptance in regards the use of social media for work purposes.

Despite the extensive empirical studies investigating the effects of several factors on social media adoption, there nonetheless remains a misunderstanding for some of these relationships, such as the relationship between perceived supervisor support and social media acceptance to use. For example, the study carried out by Charoensukmongkol (2014) found that perceived supervisor support has a negative impact on the use of social media by employees at workplace. The study mentioned that the main reason for this was due to the fact that employees view social media usage as being a waste of

time and as having a possible impact on their work-related productivity. Such a perspective is believed to stem from their expectations of their supervisors' perceptions about the general use of social media in the workplace. This justification is logical from such a point of view when the use of social media is personal, such as for pleasure or anything non-work-related. Such negative relationships can then enhance the negative perceptions pertaining to the value of social media usage by organisational members in the workplace. Therefore, there is a need for a comprehensive model in regards the use of social media for work purposes, which investigates the most critical factors enhancing usage and the extent to which social media usage for work purposes can impact innovation through HC and KS.

Lastly, the significance of this notion is centred on providing insight into the importance of social media and on investigating ways for small and medium-sized business owners or managers to exploit the chance to avoid useless conventional usage by their members and to instead redirect such usage towards work purposes whilst harnessing social media usages to acquire external knowledge and become more innovative.

1.5 Aim, Objectives and questions of the Study

The aim of this study is to investigate the controversy surrounding whether or not the use of social media for work purposes (SMUWP) leads to added value for organisations. The study will achieve this by examining the effect of social media use for work purposes, on innovation, through knowledge-sharing and human capital in SMEs in Saudi Arabia. It will also consider the role of the perceived usefulness of the SMU experience, and perceived supervisor support in enhancing the use of social media for work purposes.

1.5.1 Research Objectives

1- To examine the impact of the perceived usefulness of SMU experience and perceived supervisor support on the use of social media for work purposes.

2- To gain understanding of, and insight into, the impacts of SMUWP on the knowledge-sharing process and on human capital.

3- To explore the impacts of the knowledge-sharing process and human capital on innovation within SMEs.

4- To investigate the impact of SMUWP on innovation through the knowledge-sharing process, and on human capital, in SMEs.

1.5.2 Research Questions

1- Does the perceived usefulness of the SMU experience and perceived supervisor support have a positive effect on the use of SMUWP?

2- To what extent does SMUWP impact on knowledge-sharing and human capital in SMEs?

3- What are the relationships between knowledge-sharing, human capital and innovation within SMEs?

4- To what extent does SMUWP impact innovation through knowledge-sharing and human capital in SMEs?

1.6 Research Context

It is generally recognised that small and medium enterprises (SMEs) provide a major source of prosperity and employment. As such, they are a vital factor in countries' development. SMEs are also considered drivers of innovation and competition in many economic sectors (Robu, 2013; Wamba & Carter, 2016). In the business research

literature, up to the present time, there has been no real agreement about the definition of SMEs; however, most studies are in agreement that, whether or not a firm can be defined as an SME depends largely on the number of staff employed there. For example, the European definition of SMEs is "made up of enterprises which employ fewer than 250 persons" (Lasagni, 2012).

The maximum employee numbers required for SME classification normally depends on the country in question, since the figures are based on national trade policy classifications. In this thesis, the context of the study was SMEs in Saudi Arabia. Saudi Arabia considers an SME as a firm with fewer than 200 employees. Medium-sized organisations employ 50–200 workers, whilst staff numbers for small firms are below 50 (Saudi Arabia Monetary Agency, 2010; Jeddah Chamber's report, 2015).

A number of challenges are faced by Saudi Arabian SMEs, which lack some of the essential factors facilitating the continuation and development of businesses. They suffer specifically from problems in areas such as innovation, management and business planning. For example, 'copycat behaviour', in which numerous similar outlets or shops established in the same vicinity, tends to destroy innovation (Al Saleh, 2012).

The main focus of SMEs is on purchasing and selling products, whether they are goods or standard services. Margins, therefore tend to be low and growth limited. What is needed is such firms seeking something innovative. Where SMEs specialise and diversify, they suffer as a result of poor or absent marketing and low levels of managerial information and ICT. A strategy for knowledge management is therefore of paramount importance in Saudi Arabian SMEs (Riyadh Chamber Commerce and Industry, 2014).

Furthermore, the funding available for upgrading human capital is limited. This is due largely to the high fees charged by training institutes. Many demand as much as $3,000 for short training courses in areas such as accounting or planning (Riyadh Chamber of Commerce and Industry, 2011; Al Saleh, 2012).

However, the Saudi Arabian Government has recently launched a new vision, aimed at strengthening SMEs by delivering improved services for communities through investment in infrastructure and enhancing innovation. Such measures are designed to help the growth of businesses so as to enable them to adapt and prosper. This is of particular importance in view of the fall in oil prices and the current economic crisis. Thus, in an attempt to lessen the country's dependence on oil revenues, the Saudi Arabian government has begun to support research focused on this goal (Saudi Vision 2030, 2017). This study therefore aims at investigating the impact of social media usage for work purposes, on innovation, through knowledge-sharing and human capital in Saudi Arabian SMEs. Finally, SMEs have been adopted in general with any activity. This is based on the aim of this research, which is concentrated on the factors of knowledge management and the perceptions of organisations' members belonging to different activities, which can be reflected by any type of activities.

1.7   Research Outline

This thesis contains seven chapters, as detailed below.

Chapter One: Provides a brief overview of the study. It highlights the background to the study, its problem, contribution, and the research gap it fills. It covers the aim of the research, as well as its objectives and questions. It then outlines the context of the study and the structure of the thesis.

Chapter Two: Presents the conceptual framework and outlines all model constructs, including concepts and definitions. Furthermore, it demonstrates the importance of the

study and reviews existing literature on the role of social media for work purposes in SMEs.

Chapter Three: Highlights the theoretical foundations upon which the present study is built. The chapter then provides a thorough review of the empirical literature, examining those factors recognised as affecting social media usage for work purposes. These include perceived supervisor support and perceived usefulness of the SMU experience. In addition, the relationship between SMUWP and innovation is identified through the mediating role of the KS process and HC. The hypotheses are then addressed.

Chapter Four: Defines the methodological perspectives used in this thesis. Philosophical assumptions are discussed and justified, as are the paradigm of enquiry, the research approach and the research methodology, as selected for this investigation. Secondly, the research design and methods used to collect the data and test the hypotheses are identified and outlined. Research ethics are examined and discussed. Furthermore, the operationalisation of the variables and the statistical techniques employed for data analysis (the multivariate data analysis approach) are presented and discussed, along with an outline of the pilot test.

Chapter Five: Presents the results obtained from the surveys undertaken during this study. Overall, the chapter begins by providing a presentation of descriptive statistics. The samples are described and the statistical assumptions checked. The chapter then assesses the measurement models in order to determine the reliability and validity of the measures applied in the survey. Finally, the structural models are evaluated and the hypotheses tested.

Chapter Six: Presents a discussion on the issues. It opens by referring back to the research questions. The findings are then explained before linking back to the literature.

At this point, the research questions, as proposed in the thesis, are addressed in full detail. Where there are aspects of the present study that are seen to contradict the findings of earlier research, these are systematically investigated.

Chapter Seven presents the conclusions of the thesis. In this section, the aims, objectives and questions upon which the research has been based are all linked to the findings obtained throughout the course of the study. The theoretical and practical implications are presented, whilst the limitations of the study are acknowledged. Potential areas for future research are then identified.

The chapter to follow this one is the first chapter of the Literature Review. It establishes the conceptual framework for the research, as well as reviewing the variables and concepts, and their importance in the context of SMEs.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Overall, the aim of this chapter is to provide a review of the literature which is relevant to this research. It will, thus, present a conceptual framework with which using social media for work purposes, as well as the significance of this usage for innovation, knowledge sharing and human capital. Furthermore, it shows that the most significant factors affecting whether or not social media for work purposes in SMEs is adopted, are the perceived supervisor support and perceived usefulness. Therefore, for each one of the constructs, used in the framework of this research, an overview, the definitions, the advantages and the challenges are set out.

2.2 Overview

The interactions between people, organizations and communities, has been radically altered by the arrival of social media (Ngai *et al.*, 2015). Social media has been defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and allow the creation and exchange of user generated content" (Kaplan and Haenlein 2010, p. 61) People have been empowered, by the use of these applications, to create, exchange and share, and information in a virtual community. Social media have developed dramatically, such that it has enabled people to forge connections with others worldwide, by means of various social media platforms (Colliander and Dahlén, 2011). In today's society, social media participation offers benefits which go beyond mere social communication. It allows people to establish their reputations, providing opportunities for career development, as well as, creating direct monetary revenue and facilitating the acquisition of knowledge (Tang *et al.*, 2012).

For those types of businesses which challenge traditional procedures and processes, social media can be seen as a driver of a new set of models (Hanna *et al.*, 2011). The most significant difference is that the current norm for business transaction, has become one-to-one mass customization. This has superseded the old promotion model of one-to-many marketing (Peters, 1998). Furthermore, in our current Internet/computer era, marketing strategies are now formulated in view of yardstick provided by online customer reviews.

In the context of intra- and inter-organizational activities among co-workers, peers, customers, business partners, experts, and organizations, social media can be a helpful tool; collaborative product development, being a good example (Mangold and Faulds, 2009; Porter and Donthu, 2008). It also facilitates the creation of knowledge sharing communities (Fernando, 2010; Kasavana *et al.*, 2010; Yates and Paquette, 2011), the use of corporate dialogue within financial institutions (Bonsón and Flores, 2011), improved capacity for solving problems, the enhancement of organizations' human capital and innovation (Annie Jin, 2012; Laroche *et al.*, 2013), as well as creativity and collaborative learning (Peppler and Solomou, 2011). Social media brings both challenges and opportunities. It is, therefore, essential that both individuals and organizations must be well equipped to maximize the benefits which it offers (Ngai *et al.*, 2015). This research therefore, attempts to demonstrate how much the employees use social media and how such usage may be redirected towards work purposes. In addition, this study will highlight the implications of this phenomenon.

2.2.1   Social media definitions

Social media can be define as a tool that empowers users to develop, contribute to, collaborate on, customize and distribute web content (O'Reilly, 2005; Vickery and Wunsch-Vincent, 2007). Social media has become a common platform for sharing

various types of user-generated content such as news, photos, and videos made public within a bounded system (Boyd and Ellison, 2007). In addition, social media also can be defined as a power of social realms, it considered as a generator of social interaction, social relationship, social norms, social knowledge, social learning, social cooperation, social tools and so on (Fan and Gordon, 2014; Zafarani *et al.*, 2014; Fisher, 2016). Furthermore, from Nath, (2015) perspective, social media considered as knowledge management system and contribute cultivate knowledge management process in the organisations.

A diversity of applications have been developed since the advent of social media, and these have become increasingly popular in the everyday lives of users. The user-generated world of Web 2.0 is comprised of such social media networks such as Facebook, Flickr, Google+, YouTube, Twitter, Wikipedia and Second Life. Facebook, a popular application for social networking, had in excess of 1.15 billion active users registered on January 17, 2014 (Bennett, 2014). 128 million users log onto the site on a daily basis, just in the United States, while up to 41% of all social networking traffic is comprised of Facebook use. On YouTube, the popular platform for video-sharing, 100 h of content were posted per minute. Meanwhile, there are 87 million member registered on Flickr, an image hosting-site, to which over 3.5 million new images are uploaded every day (Jeffries, 2013). The development of such a diversity of social media platforms has allowed the online environment to become genuinely interactive and collaborative. It enables individuals to engage actively engage in two-way communication. Reviews of services can be posted, self-created videos can be uploaded and it is now even possible to participate in virtual lives. Indeed, what social media offer is a common platform from which user-created content can be shared. This encourages users to engage actively by means of, interactivity, thus giving the public

the level of control they deserve (Kaplan and Haenlein, 2009). Furthermore, ther is an enormous amount of information and knowledge which social media can provide, making it a suitable space for informal and self-learning (Khang *et al.*, 2014; Hester *et al.*, 2016). Social media's advanced features are thought to inspire different user motives from those connected with traditional Internet usage (Kimmerle *et al*., 2015). There has, therefore, been an increase in scholarly interest regarding those factors which impact on social media use, and what effect this may have on numerous factors within organisations (Khang *et al.*, 2014). As a result, according to the aim of this study, social media in term of work purposes has been adopted and based on the aforementioned definitions, it can be defined as:

"The degree to which employees are using Social Media for work purposes whether inside or outside their organisation in order to enhance their knowledge, skills, self-learning, problem-solving capacity, and 'social and human capital' ".

2.2.2 Social media usage for work purposes

Razmerita *et al.*, (2014), argue that the Web has become a social space, due to how widely it has been adopted. As a result, it also provides unique means of facilitating social processes, as well as managing data, information and knowledge. New terms have arisen, since the advent of social media, such as Enterprise Social Software (ESS), social software-based knowledge management (Von Krogh, 2012), Enterprise 2.0 (McAfee 2009, 2006), or social business. Such terms indicate an acknowledgement that social media have a significant role to play, in terms of collaboration, as well as in supporting of social processes, for the purpose of communicating and managing knowledge in modern ventures.(Majchrzak *et al.*, 2013; Hester *et al.*, 2016). Firms are now investigating, through social media, novel ways in which they foster and maximize their benefit from sharing knowledge, not only with customers, but also with experts,

supplier and partners both within and external to organizational boundaries (Davison *et al.*, 2014). Furthermore, direct communication between user, stakeholders (Waters and Jamal, 2011), and co-workers (Dimicco *et al.*, 2008) is facilitated by social media.

Furthermore, it becomes possible for employees to respond the questions, ideas, viewpoints and successes of their fellow workers (Small, 2011). A diversity of communication tools is offered by social software. These are frequently based on Internet technologies (e.g., instant messaging, forums, text chats, virtual worlds, and social media). It was from groupware and computer-supported collaborative work that social software developed. Hence it supports group interaction (Haefliger *et al.,* 2011).

It is possible, therefore for members of an organisation to make use of facilities of this kind, for the purpose of improving their performance at work, expanding their knowledge, developing their skills and behaviour, and for problem solving tasks (Ellison *et al.*, 2015). It also allows them to contact with experts and equivalent co-workers, and extracted useful knowledge and new ideas globally in any time without restrictions (Lam *et al.*, 2016). Moreover, using these facilities provides employees with opportunities to practice such useful behaviours as knowledge-sharing and creativity. Furthermore, it allows these beneficial behaviours to be brought into their organisations (Leonardi, 2014). Social media also provides a platform for informal learning, training, knowledge management and suitable network connections with a variety of experts, specialists and entrepreneurs in various fields. Employees are thus empowered to build their own individual human capital (Razmerita *et al.*, 2014; Yates and Paquette, 2011). Consequently, these facilities can enhance human capital, the

knowledge-sharing process, and the problem-solving capacity of organisations (Turban *et al.*, 2016). Without a doubt, such factors can lead to successful innovation, as they are considered to be essential to competitive advantage and the growth of an organisation (Wu *et al.*, 2008; Felin and Zenger, 2014; Hislop, 2013; Wang *et al.*, 2014).

2.2.3   Social Media as Learning Tools in the Workplace

The use of technology is widespread throughout our personal lives and in the workplace. Workplace use of technology, both by organisations and their individual members, has increased markedly in the face of recent technological developments. Various types and methods of communication and collaboration are offered by these new technologies (Gikas and Grant, 2013), which have been given the formal definition: "a set of technologies and channels targeted at forming and enabling a potentially massive community of participants to productively collaborate" (Bradley, 2010). The purpose of social media, including blogging, Twitter, wikis, instant messaging and Facebook is not limited to the purely social. Indeed, they have begun to be used by large organisations, including corporations, as a means of increasing communications with customers, and to enhance their branding. In addition, organisations utilise these tools to increase levels of learning and knowledge-sharing (Huang *et al.*, 2010). A survey of 400 companies, in 2008, found that as many as 94 percent of organizations either continued with their level of investment in online communities for employees, partners and customers, or increased it(Palmer, 2009).

Thomas and Akdere (2013) indicated that social media tools are mainly regarded as a way of communicating and exchanging information. Thus, it is vital to investigate the possibilities they offer as learning tools.

It has therefore been mooted that the term "collaborative media" demonstrates the best way of using, and accepting, social media as another means of learning in the workplace. As such, it is a way of both increasing organisational knowledge and sustaining it. The definition of workplace learning by Jacobs and Park (2009) is, "the process used by individuals when engaged in training programs, education and development courses, or some type of experiential learning activity for the purpose of acquiring the competence necessary to meet current and future work requirements" (p. 134).

The established view of training is that it involves a number of events which have been planned in order give learners specific work skills. Such an approach "assumes that organisations can analyse a task, process or function to discover an optimal means of performing it, document that optimal method, and then prescribe the required skills or expertise that a learner must master to perform the task" (Marsick and Volpe, 1999, p. 2). This type of training, is generally directed towards a specific set of skills, which are required for a particular task or group of tasks. (Puijenbroek *et al.*, 2014) have pointed out that social media tools are not synchronous and are, by nature, mobile. As a result, they facilitate informal learning.

Marsick and Volpe (1999) define informal learning "as learning that is predominantly unstructured, experiential, and non- institutional that happens as employees carry out their daily work and that is a result of people's choices, preferences, and intentions" (p. 1).

Learning which is to occur at any time and in any place, it necessitates methods and tools which can be accessed anywhere and at any time. Thus, social media and informal

learning can be seen as complementary and mutually supportive (Paulin and Gilbert, 2016).

"Learner centered" and flexible approaches are beneficial, not only to learners, but also to the organization (Yeh and Swinehart, 2016). According to Marsick and Volpe (1999), learners are enabled to take control of their own learning when organisations give them ways in which they can bring information and knowledge into their work environment exactly when they require it.

Maximization of learning can then be dispersed throughout the organization. The competence of those employees who have less experience and knowledge can be improved, the general effectiveness of the organisation enhanced, for example, in the area of problem-solving (p. 3). Moreover, informal learning is the approach best suited to employing social media tools for workplace learning purposes. Social media, then, allows the members of an organization to engage in speedier and less conventional interaction. The restrictions traditionally associated with space and time are thus eradicated (Hester *et al.*, 2016). Social media involves participation*,* usually by means of connecting, communicating, and collaborating with anyone anywhere, at any time (Jue *et al.*, 2009). This phenomenon is, according to Bingahm and Conner (2010), the new social learning. They point out that "it reframes social media from a marketing strategy to a strategy that encourages knowledge transfer and connects people in a way consistent with how we naturally interact" (p. 6). Social media tools, allow members of an organization to communicate often and effortlessly. They can share their knowledge and enhance their performance, both individually and collectively, thus raising the level of human capital in their organisation (Ellison *et al.*, 2015).

One example of the above is the online learning community known as "Sabre Town", which was set up by the firm Travelocity, along with other travel reservation systems (Bingham, 2011). Sabre has in excess of 10,000 employees, in 59 countries. Management considered that forging connections between them was essential if employees were to share the knowledge each of them had gained, through their own experience of the worldwide travel business. The system which was created allowed employees to create a profile detailing their expertise. Sabre's social networking software directs any questions, posed by an employee, to all their co-workers with the appropriate expertise to address the question. An online dialogue ensues, which continues until the question has been answered and the matter satisfactorily concluded (Smith, 2010).

Many organisations which make use of social media use this straightforward protocol of question-and-answer Likewise, a number of government agencies have started to make use of the informal learning opportunities social media offers. For example, GovLoop is a social media network created by the U.S. government. There are 25,000 members of this network, with 1,500 discussions in progress at any one time, and 4,000 blogs (Smith, 2010, p. 24). GovLoop had more than 65,000 members by January 2013. Furthermore, GovLoop has been presented as a government innovation case study, in a number of books, including, "Macrowikinomics" (Paulin and Gilbert, 2016).

There are many further examples, from other areas, which serve to illustrate the ways in which social media are being used to encourage learning. For instance, social media are being employed by the travel industry for the purpose of training customer service representatives (Hyland, 2009), while, in the restaurant industry, learning is being shared by workers, using social media (Palmer, 2009). Online communities of learning

are being created, on social media, in the field of the health care. These are also used to help socialise new nurses (Skiba, 2008).

It is clear that knowledge-sharing and learning are already being conducted by the means of social media, in many organisations. The next challenge, having created the knowledge, is that of knowledge management. Organisations need to ascertain how best collect, share and manage the knowledge and ultimately use it to benefit learning in the workplace.

(Thomas and Akdere, 2013).

2.3   Challenges of social media usage adoption at workplace

Utilising social media, for learning or for work purposes, requires much more than merely acquiring the technology, assimilating it into the procedures of the organisation, and introducing it to employees (Hester *et al.*, 2016). A number of pertinent questions have been posed by Jue *et al*. (2009): "Once we invite participation, how do we guide the effort so that it is most productive? How do we combat organizational fears? How do we engage those leaders who may be sceptical about changing their behaviours?" (p. 3). However, there are those organisations who neither favour nor seek to create a culture or environment which is supportive of new technologies, learning or collaboration, this is particularly the case in SMEs (Meske and Stieglitz, 2013).

The idea of using social media for work purposes, presupposes that all organisations are in favour of information being freely shared amongst members, so that they can learn and develop, and assumes that collaboration between members is encouraged (McCann and Barlow, 2015).

Nevertheless, there exists an "anti-learning culture", to use the term coined by Wegner *et al.* (2002).

Learning, knowledge sharing and reflection may be actively discouraged by some organisational cultures. Some organisations only value individual tasks and performance, while others may hinder participation by their policies or company infrastructure. The marginalization of communities of practice can easily occur under such circumstances. (p. 156).

It is reasonable to assume that organisations of this kind would neither support nor encourage their employees to utilise social media as learning tools or for work purposes. Furthermore, social media use might be considered a distraction, if individual achievement and productivity are the only aims emphasised by the organisation (McCann and Barlow, 2015; Jackson *et al.*, 2016). According to Bingham and Conner (2010), there are several ways to tackle this type of anti-learning culture, and its concurrent resistance to sharing knowledge via newer technologies. Technologies of this kind remove an organisation's physical boundaries. In addition, they have the capacity to nurture the culture of the organisation and help create its identity. Thus, trust can be built, at the same time as the organisation's values are being reinforced. In order to achieve this, open, trusting and collaborative relationships need to be implemented and supported by the organisation's managers, supervisors and leaders. It is also necessary to recognise the efforts employees are making, and, in so doing provide motivation for further learning (Beamish, 2008, p. 70).

It is sometimes the case that an organisation's leaders may have a poor grasp of technology or social media tools. This may make them even more suspicious of the benefits of knowledge-sharing and collaboration. Social media tools may represent something of the unknown to many managers and leaders, even when they are being employed for knowledge-sharing purposes and knowledge management (Meske and Stieglitz, 2013; Pfeffer and Sutton, 2013). A survey of 441 Information Technology

(IT) leaders from the United States conducted in 2008, discovered "that 59 percent of the respondents considered a lack of understanding to be the primary impediment to implementing social media technologies" (Bingham, 2009, p. 61).

Fear of the unknown is therefore the major barrier facing organisations who want to utilise social media for learning purposes, because they are anxious about how these tools will be employed. There remains a lack of understanding on the part of many managers about social media tools and the opportunities they offer for learning in the workplace (Thomas and Akdere, 2013).

Sometimes anxieties technologies which are new, or have not been tried and tested, may hinder the implementation of, or support for social media tools. This may even be the case where the organisation does have a culture of collaboration or where knowledge management systems are already in place. There will be some workers who are unfamiliar with new technologies, and training will be required regarding how such tools apply the work. Nevertheless, most younger people regularly use social media (Thomas and Akdere, 2013), so that many of an organisation's workforce will already be experienced social media users. They may already perceive social media to be useful; this is a factor which can help towards genuine social media usage for work and learning purposes (McCann and Barlow, 2015; Rauniar *et al.*, 2014; Ngai *et al.*, 2015). According to a survey conducted by Lenhart *et al.*, (2010), "As of September 2009, 93% of American teens between the ages of 12 and 17 went online, a number that has remained stable since November 2006 and 74% of adults use the internet" (p. 5). In addition, amongst teenagers between 12 and 17, 73% made use of an online social networking site. For online adults, the figure was only 47% (Lenhart *et al.*, 2010).

Nevertheless, the use of social media tools can be said to be widespread in both the current and future workforces. It therefore seems likely, that organisations generally underestimate the numbers of employees who are skilled and knowledgeable regarding such tools. Leslie and Landon (2007), in their discussion about the utilisation of technology for learning, argue "if you can't beat them, help them." By this they mean that, if employees are already making use of social media at home and using them for personal reasons at work, the organization can capitalise on these skills to facilitate employees' social media user for learning in the workplace, or for knowledge management.

Therefore, in the context of the above argument, this study adopts the perception of supervisors' support and the perceived usefulness of the social media usage experience as important factors which affect social media usage for work purposes by organisation's members.

2.3.1 Social media and the role supervisor support

There is a risk that leaders and managers in organisations, focus on the "social" aspect of social media. As a result, they may be concerned that the tools will be used exclusively for non-productive purposes and for activities which are not connected to work (Moqbel *et al*., 2013). The issue of work versus person usage of social media, is one which cannot be ignored (Thomas and Akdere, 2013). For example, by the tendency to use Facebook for personal issues and LinkedIn for professional purposes, a distinction is already being made between different social media tools.

The term "social media for work purposes" has been suggested to avoid misconceptions or misunderstandings. The term is used to denote the use of any social media tool for Consequently, to prevent such misconceptions or misunderstanding, the term of social media for work purposes has been suggested to define any social media tool which can

be used for productive work which related activities, most particularly as they are applied to workplace learning and knowledge sharing (Jackson *et al.*, 2016).

Thomas and Akdere (2013) have proposed that, if the term social media is altered to one that better reflects what these tools are meant to be used for, then managers, supervisors and leaders of organisations will be better disposed towards implementing such tools and encouraging their use to improve informal learning within the workforce.

A more accurate framing of the tools is necessary, to reflect the fact that they are intended to facilitate collaboration on projects, rapid information retrieval, to help with problem-solving or the dispersal of important knowledge about the organisation. This will make leaders more inclined to take the view that social media are not only useful, but also essential tools to support organizational goals objectives. They will then be less likely to regard them as distracting and leading to reduced productivity (Meske and Stieglitz, 2013; Thomas and Akdere, 2013; Jackson *et al.*, 2016).

In view of these arguments, it is important that both academics and practitioners develop an improved understanding of the ways in which social media tools can improve and foster workplace learning. By so doing, they will help social media technologies to become better accepted in the workplace.

Supervisors and managers are, according to Conley and Zheng (2009), responsible for keeping up to date with technological developments, to ensure that their organisations are best placed to maximise the benefits they can derive from using technology.

Chatenier *et al.*, 2009; Sadler-Smith *et al.*, 2000) have, however, indicated that, although some organisations welcome the use of social media, others are suspicious, fearing that their members will not know how to use these tools, or that they will use them for unproductive activities.

Other commentators have argued that organisations who fail to embrace social media will, inevitably become less competitive. According to Jue *et al.* (2009) social media tools provide a means for organisations to survive in a global market, which is subject to rapid change. There is instability in the environment, but clever leaders and organisations have an unprecedented opportunity to take advantage of this situation by making use of what the developing social media have to offer. However, those leaders who have a genuine commitment to achieving and maintaining their competitive edge, will have to depend on devoted employees and partners (p. 2).

In a similar vein, the Chief Learning Officer for Sun Microsystems, Karie Willyerd, stresses the significance of social media and informal learning, investigating how these tools can be used to avoid falling behind.

One aspect of this is the considerable emphasis on the 10 percent (formal learning), the 70 percent (informal learning). Learning organisations risk falling behind if they fail to utilise social media and get into that 70%. Since people can post and share knowledge together, without resorting to the learning functions, such organisations risk becoming insignificant. Learning therefore needs to respond actively to the situation, to enable and facilitate informal learning by genuine involvement in social media. For the learning profession, this is an exciting situation, enabling them to capture an organisation's performance (Bingham, 2009, p. 57).

Social media have uses for organisations beyond the maintenance of a competitive edge. Since people are so involved with social media in their private lives, and have so much experience of them, such tools have become an essential part of appealing to talented people globally, and retaining them in the organisation (Munar and Jacobsen, 2014). Workers are now increasingly mobile, since jobs are not as permanent as they

use to be. Organizations that employ technology to encourage transferable skills are most likely to attract the most talented and the best employees (Szabó and Négyesi, 2005) As a result, it is important for managers to maintain their focus on managing organisational knowledge. They can thus make sure that the tools chosen by their organisations are best suited to fulfilling organisational objectives. Furthermore, employees can be encouraged with these choices (Bennett, 2009).

Thus, social media tools foster a culture which is conducive to attracting talent, as well as offering useful means of problem solving (Turban *et al.*, 2016). The value of social media tools is likely to increase in the face of greater globalisation of organisations and the wide dispersal of staff, with the relationships between supervisors and employees also becoming more geographically distant (Bente *et al.*, 2008; Crouse *et al.*, 2011). Under such circumstances, social media tools are simple to use for accessibility and foster more efficient and more effective working.

Regarding an organisations technological infrastructure, there is change of emphasis from collecting and sharing knowledge to the nurturing of personal connections amongst staff members. It will therefore be incumbent upon supervisors and managers to ensure that knowledge moves efficiently around their organisations (Conley and Zheng, 2009). According to Shepherd (2008), in addition to being extremely effective communication tools, social media also have "relevance for informal learning because they encourage the sharing of expertise from a bottom-up perspective, without the need for managerial intervention" (p. 29).

Senge (1990) pointed out that managers require increased local control greater employee autonomy. There are some situations in which organisations have become cumbersome and thus not easy to control. Under such circumstances managers could

use social media tools, to enable employees to find their own answers and to forge connections with other organisational members in order to share knowledge and tackle problems (Munar and Jacobsen, 2014).

According to a number of researchers, how significant employees feel that social media is to them at work, often depends on how much interpersonal support they perceive that they are receiving from their supervisors (Robertson and Kee, 2016).

The level of support employees receive from supervisors is related to their perceptions about how important their well-being is to those supervisors (Charoensukmongkol, 2014). Supervisors are seen as controlling the rewards and punishments meted out to employees. Therefore, an employee perception of how much the supervisor is concerned with his or her welfare, has an effect upon how that employee behaves at work (Ertureten *et al.*, 2013). Furthermore, social exchange theory provides an explanation of how supervisor support contributes to employee behaviours. The theory suggests that ''employees who perceive their organizational environment as supportive will feel obligated to reciprocate with behaviours that are beneficial to the organization'' (Zhang and Jia, 2010: p. 747).

There is a continued expansion in using social media tools for (Bingham, 2010; Brown *et al.*, 2006; Gill, 2010; Lowe and Holton, 2005; Weinstein and Shuck, 2011). However, up to this point in time, there is a paucity of research regarding the viability of utilising social media as a learning tool, or for work purposes within organizations. Consequently, the literature tackling the dual fields of collaborative media and workplace learning is sparse. Thomas and Akdere (2013), have emphasised the need for further research investigating the employees' perceptions and experiences in

organizations which use social media tools for work purposes. Such research could validate the efficacy of such tools and discover best practices.

Furthermore, it could address the problem that supervisors and high level managers resist the use of social media due to ignorance about the beneficial uses to which employees can put it. Thomas and Akdere (2013) stress the importance of designing such research so that it can indicate to what level social media are employed for solving problems, for collaborating on projects, and for the convenient spreading of organisational knowledge. Such work could not only address concerns, but also generate information about the varied uses of social media.

Research of this kind is of especial significance SMEs, helping them to promote knowledge management and to nurture workplace learning, with a view to encouraging innovation (Meske and Stieglitz, 2013; Thomas and Akdere, 2013). As a result, this study assumes that perceived supervisor support plays a vital role in employees' acceptance of social media usage for work purposes. Therefore, in this study, based on the above arguments, perceived of supervisor support can be defined as "the degree to which an employee perceives that the supervisor support about his or her social media usage for work purposes".

2.3.2 Usefulness of social media usage experience

It is evident from the literature of technology adoption, that the technology acceptance model (TAM) as first proposed by Davis (1989), has been applied by many studies.

The focus of this model focuses on attitudinal explanations of the intentions of individuals to make use of a particular technology or service. It is possible to understand this in terms of the roots of the model. These are based on such proven theoretical

frameworks as the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) and the theory of planned behaviour, which developed from it (TPB) (Ajzen, 1991).

End-user's adoption and acceptance of various types of ICT-systems and applications have often been explained by means of TAM and TPB (Venkatesh and Davis, 2000; Ngai *et al.*, 2015). TAM works on the assumption that behavioural intention determines actual use. This derives from attitudes towards using the tools.

It has been hypothesised that attitude depends on the perceived utility, or potential benefits of such tools and the perceptions of how easy it is to use them. There have been a number of studies which have examined the determinants of the intention to utilise electronic services (Gefen *et al.*, 2002; Pavlou, 2002). However, TAM has become as one of the most significant models. It has also made a vital theoretical contribution to our understanding of our usage and acceptance of information systems (Malhotra and Galletta, 1999). Less clear, however, is the link between the 'ease of use' concept and the intention to adopt. Certain studies have indicated that ease of use and intention to adopt are not directly connected (Davis, 1989; Gefen *et al.*, 2002). Others make no report of such a relationship (Warkentin *et al.*, 2002). According to TPB, actual behaviour derives from behavioural intention. TPB, hypothesises that there are three determinants, on which behavioural intention depends (Ajzen, 1991). The first determinant is attitude towards behaviour. This is regarded as emerging from a consideration of beliefs and evaluations. The second variable is subjective norm, which TPB also regards as relevant to adoption behaviour.

TPB also regards the views of "relevant others", about a particular type of behaviour, as having an impact on the behaviour of an individual's behaviour (Malhotra and Galletta, 1999; Rauniar *et al.*, 2014). Perceived behavioural control, is the third variable

identified by TPB. The use of this variable has its roots in Bandura's self-efficacy concept (Bandura, 1977). A further significant area in which TAM and TPB differ from one another, is that TAM emphasises perceived benefits. TPB, meanwhile, enables both positive and negative beliefs.

There are likely to be both risks and benefits to the end user when a new technology is introduced. An individual is likely to assess these before making a decision about whether or not to adopt the technology. Social media is no exception to this rule. However, the individual thinking around this has considerable complexity because it is founded on the individual's perception of what the benefits might be, rather than on actual benefits (Rauniar et al., 2014).

An individual's perception of such benefits will be subject to actual use, on prior experiences with the technology, as well as on how far the individual perceives that they will be in control of the outcomes (Ngai et al., 2015). Higher levels of experience may make people more amenable to accepting greater usage (Sitkin and Weingart, 1995). Thomas and Akdere (2013) suggest that users' views about collaborative learning, alongside their experience of using social media tools for knowledge-sharing practice, may either deter them from, or encourage them to participate in collaborative learning procedures which make use of such tools.

If individuals are to deal satisfactorily with social media's perceived benefits for work purposes, they require a degree of faith their own experience. This may have been developed from earlier use of social media for personal purposes (Featherman and Pavlou, 2002; Gefen et al., 2002; Meske and Stieglitz, 2013).

Furthermore, Rauniar *et al.*, (2014) has highlighted the importance of prior experience of using technology, if individuals are to be able to see clearly and accurately assess the perceived usefulness of the technology in question.

Therefore, this study adopts employees' perceived usefulness of social media usage experience, and how such perceptions may affect their acceptance of using social media for work purposes. Therefore, in this study, perceived usefulness of social media usage can be defined as "the degree to which an employee perceived value about his or her social media usage for learning and work purposes".

2.4 Knowledge Management (KM)

Traditionally, information technology, and perspectives, which are driven by technology, have dominated the field of knowledge management (Davenport *et al.*, 1998; Gourlay, 2001). Nevertheless, the part that individuals have to play in knowledge management processes is being increasingly recognised. In addition, interest is developing in the "people perspective" of knowledge within organisations (Earl, 2001; Stenmark, 2001). Links between individuals within an organisation are now being regarded as key to the successful management of knowledge. (Brown and Duguid, 1991; McDermott, 1999). There is also an increase in the amount of empirical evidence demonstrating the significance of people and other people-related factors as essential to knowledge processes in organisations (e.g., Quinn *et al.*, 1996; Andrews and Delahaye, 2000). Bollinger and Smith (2001) have used the goal and the process perspectives in their examination of the development of KM. They argue that there is a focus on information sharing for the good of the organisation. Chang and Lee (2008) regard the aim of KM as being to augment the performance of an organisation and enhance its levels of innovation. Likewise, Davenport and Prusak (1999) advised that applying KM in organisations lowers costs and helps organisational knowledge to be

shared, in ways which facilitate problem solving. The benefits of using KM, it is claimed, are that it helps the decision-making process, reduces errors in the organisation's work, fosters innovation and improves customer service and satisfaction (Chen and Huang, 2009; Pervaiz and Shepherd; 2010). KM can make use of the existing competencies within firms and, by encouragement innovation and the creation of knowledge, can help provide them with a competitive advantage (Wei *et al.*, 2009; Xu *et al.*, 2010; Humayun and Gang, 2013). Furthermore, KM opens up access to know-how and expertise. It fosters a climate of collaboration and continual learning (Du Plessis, 2007).

KM is mechanism of co-ordination. It can be used to transform resources into capabilities which, in turn, enhance organisational performance (Darroch, 2005; Hislop, 2009). KM involves the development and exploitation of knowledge assets and is essential when new technology is adopted (Lin and Lee, 2005). A pilot study, in a number of Egyptian organisations, carried out by Zaied *et al.* (2012) discovered that KM processes, in particular acquisition, storing, conversion, and protection, can improve the performance of organisations. Indeed, organisations which manage knowledge effectively are better able to transform their intellectual capital into products and services which are truly innovative (Chen and Huang, 2009; Huang and Li, 2009; Chen *et al.*, 2010). KM may therefore be regarded as a leading paradigm and is essential for an organisation to succeed.

KM is the process by which knowledge is organised and made available for decision-makers' to use (Liao and Wu, 2010). Massa and Tsesta (2009) regarded KM as encompassing processes, people, culture and technology. According to Yang (2011), KM is a process of creating, circulating, and applying organisational knowledge, to facilitate the exploitation of new opportunities and to improve organisational

performance. Ipe (2003) sees KM as a set of procedures and infrastructures, as well as technical and managerial tools, that enable the knowledge to be created, shared, and applied within an organisation. Likewise, Bollinger and Smith (2001) presented a definition of KM as those activities which can be used to produce usable ideas, and then communicate them to organisational members, and exploit them for personal benefit and for the good of the organisation.

The above definitions demonstrate no universal definition of KM exists. This is because there are so many varied kinds of knowledge, with differing ways used to manage them. However, the majority of these definitions use KS, under a variety of names, including (Huang and Li, 2009; Cui *et al.*, 2005; Massa and Tsesta; 2009, Andreeva and Kianto; 2011; Awang *et al.*, 2011; Ferraresi *et al.*, 2012; Bock *et al.*, 2005; Ling and Nasurdin, 2010), dissemination (Mehrabani and Shajari, 2012; Bhatt, 2001; Gowen *et al.*, 2009), conversion (Allameh *et al.*, 2012; Liao and Wu, 2010; Gold *et al.*, 2001), transfer (Kim and Ju, 2008; Uriarte, 2008; Yahya and Goh, 2002), interchange (Nguyen and Mohamed, 2011). This underlines the importance of KS as a primary route within knowledge management. Consequently, this research focuses on KS processes, which will be discussed in the next section.

2.4.1 Knowledge sharing (KS)

A variety of terminology has been used in the literature of knowledge management has to describe KS. These terms include knowledge dissemination or diffusion (Mehrabani and Shajari; 2012; Gowen *et al.*, 2009) knowledge exchange (Nguyen and Mohamed, 2011), knowledge sharing (Ferraresi *et al.*, 2012; Andreeva and Kianto, 2011; Ling and Nasurdin, 2010), conversion (Liao and Wu, 2010; Allameh *et al.*, 2012), and knowledge flows (Schulz, 2001; Gupta and Govindarajan, 2000). Recently, the term of knowledge transfer has been widely used in the knowledge management literature, to described KS

(Massa and Tsesta, 2009; Uriarte, 2008; Yahiya and Goh, 2002). In view of this, some researchers, including Boyd *et al.* (2007) and Berggren *et al.* (2011), have sought to make a distinction between the transfer and sharing of knowledge. They have argued that knowledge transfer describes applying existing knowledge from one field into another context. This makes the assumption that the primary source of knowledge is its owner. The transfer of knowledge is therefore one directional, from its owner to a recipient. KS, however, is a much wider concept, encompassing interaction, absorption, and creation of new knowledge. Thus, in this understanding, KS takes place in two directions, and involves two or more participants.

However, numerous definitions and ideas have been suggested by researchers and philosophers. This has led to a wealth of varied concepts as to the nature of KS. For example, some of the definitions take KS to be an activity (Kim *et al.*, 2013; Hitam and Mahamad, 2012; Jahani *et al.*, 2011; Lee *et al.*, 2010). There are others who regard it as a process, moving from one individual, group or company to another (Ipe, 2003; Hooff and Ridder; 2004; Masrek *et al.*, 2011). Another viewpoint is that KS constitutes a culture or behaviour pattern, which may be expressed formally among colleagues at a place of work, or informally between friends and via social networks (Sohail and Daud, 2009; Xiong and Deng, 2008; Lin, 2007; Bock *et al.*, 2005).

Two different kinds of KS process have been outlined in previous literature. Hendriks (1999), for example, drew a distinction between the owners of knowledge, who are in possession of the knowledge, also termed externalisation, and the knowledge receivers. Ardichili *et al.* (2003) suggested that KS involves a supply of new knowledge and a demand for that knowledge. Lin (2007) considered KS to involve the carrier of knowledge and the requester of knowledge. According to Kankanhalli *et al.*(2005), the process of KS is comprised of knowledge contributors and knowledge seekers. Weiss

(1999) suggests that two processes are involved in KS. The first is knowledge collection. This involves the accumulation of knowledge, recording it and storing it. The second is the connection of knowledge, which involves the knowledge seeker gaining access to a knowledge source and identifying the required knowledge.

He *et al.,* (2009) also divided the processes of KS into knowledge contribution and knowledge seeking, while Chen and Hung (2010), described KS as knowledge contributing, collecting, and utilising. Ipe (2003), meanwhile considered the KS processes to be comprised of the transmission of knowledge and its absorption. Kuo and Young (2008) remarked that knowledge transmission involves conveying knowledge to the recipients. Absorption of knowledge, meanwhile, demonstrates how effectively that knowledge is used. Davenport and Prusak (2000) and Hussain *et al.* (2004) also draw a distinction between the possession of knowledge and its acquisition. Gupta and Govindarajan (2000) have included, in their description of KS, the sourcing transmission, receiving and absorbing of knowledge. Other researchers, for example, Tong and Song (2011), have differentiated between voluntary knowledge and solicited knowledge. In the former case, the giving or sharing of knowledge is on the initiative of individuals. In the latter situation, other people or an organisation asks individuals to share their knowledge (receiving). According to Reid (2003), KS includes both a knowledge seller and a knowledge buyer.

However, this study is in agreement with the views of Hooff and Weenen (2004). They divided KS processes into two parts: donating knowledge and collecting knowledge. A number of researchers have studied these processes, and they have been tested empirically in various environments (Kim *et al.*, 2013; Tong *et al.*, 2013; Alhady *et al.*, 2011; Sandhu *et al.*, 2011; Kamasak and Bulutlar, 2010; Chen and Hung, 2010; Lin *et al.*, 2009; Lin, 2007; De Vries et al., 2006). The donating of knowledge denotes the

process of exchange and the communication of one's personal intellectual capital to others (Hooff and Ridder, 2004, De Vries *et al.*, 2006). It signifies the willingness and enthusiasm of individuals within organisations regarding the sharing of their knowledge with other people (Kim *et al.*, 2013). Knowledge cannot be donated and transferred to others, it has been claimed, unless there is a willingness to do so (Islam et al., 2010). This encompasses the capacity of individuals to share what their knowledge and to make use of what they learn (Lin, 2007). Knowledge donating is about the owner of the knowledge, and is said to include listening, talking to others, and making information available to them to facilitate their self-knowledge development and to enable them to solve problems more rapidly (Reid, 2003, Cummings, 2004, Lin, 2007). Darroch and McNaughton (2002) have observed that this kind of KS process has, as its aim, the conversion of personal knowledge into group knowledge and organisational knowledge. It is, therefore, the case that an organisation which creates an atmosphere which inspires its members to exchange knowledge within their group, is well-placed to develop new ideas and improve the performance of the organisation (Hislop, 2013; von Krogh *et al.*, 2012; Nonaka *et al.*, 2006; Hooff and Weenen 2004).

In contrast, knowledge collecting concerns the recipient of knowledge, who should encourage colleagues to share their intellectual capital by consulting and observing them, as well as listening or practising (Hooff and Weenen 2004, De Vries *et al.*, 2006). Knowledge collecting is a reflection of how far a person is prepared to request, accept and adopt new know-how and intellectual capital (Kim *et al.*, 2013). According to Lin (2007), this is the process by which knowledge and information are acquired from sources which are both external and internal. Knowledge collecting is fundamental to the success of an organisation because organisations with a high level of knowledge-gathering expertise tend to be exceptional or even unique (Lin, 2007). Knowledge

collecting takes place when organisational members are prepared and eager to learn from other people (De Vries *et al.*, 2006). Senge (1998) specified that collecting knowledge involves learning and absorbing it, as well as its application.

These two processes, involved in KS, foster both trust and mutual respect. In addition, they encourage people's knowledge assets to flow, allowing them to be exploited for performance development (Kamasak and Bulutlar, 2010). It has been claimed that knowledge donating and collecting are connected to organisational learning. This is because learning from others may facilitate the generation of ideas and thus improve organisational performance (Seba *et al.*, 2012). Researchers have obviously been attracted to the processes of knowledge donating and knowledge collecting. However, this has not occurred to a sufficient extent and has not covered all possible perspectives or contexts. Hence, for the purpose of this study, and according to the objectives of the research, this thesis defines KS as "*a two-dimensional process, as described by Hooff and Weenen (2004) with members of staff sharing and exchanging their tacit and explicit knowledge. Daily interaction creates new knowledge through the process of knowledge exchange, donation, and collection*" (Al-Husseini, 2014).

2.4.2 Social media and its benefits for knowledge sharing

Knowledge has, for a long time, been identified as a resource with great value for organizational growth, and for maintaining competitive advantage. This is particularly true where the environments, in which organizations are competing, are uncertain (Miller and Shamsie 1996).

It has recently been claimed, by some scholars, that knowledge is the most valuable of an organisations resources, since it is an intangible asset, and involves creative processes and operational routines which are difficult to copy (Grant, 1996; Liebeskind, 1996). It is normally the case, however, that organizations do not have all the

knowledge they need internally. They need therefore, to look beyond their formal and informal boundaries and use their connections to external organizations and individuals for knowledge acquisition (Anand *et al.*, 2002). Organizational innovation, in dynamic sectors, stems from knowledge exchange and learning derived from external network connections that go beyond organizational boundaries (Nooteboom, 2000). Such external network connections are advantageous to organisational members, who are enabled to access new information, ideas and expertise, which would not be available internally. Informal interaction can also take place, unconstrained by internal rules and hierarchies. Such informal reciprocity and mutual knowledge exchange is valued and maintained over time, despite the fact that the organizations involved may be in direct competition. This is because knowledge sharing forms a vital aspect of participating in a technological community (Bouty, 2000; Nath, 2015).

Electronic communications networks, like social media, provide one way of forging connections, to external knowledge resources. By using social media, it becomes possible to share information rapidly and globally, with numerous individuals. Social media whose focus is knowledge exchange often appear in areas where rapid technological change necessitates access to knowledge which would not be available in just one organization (Wasko and Faraj, 2005). Organizational knowledge flows, between geographically distant colleagues, can be supported by social media (Constant *et al.,* 1996; Evans *et al*., 2013; Maulana, 2014), as well as dispersed efforts in the area of research and development (Ahuja *et al.*, 2003). Such networks are also helpful in the development of cooperative open-source software (Raymond, 1999; von Hippel and von Krogh, 2003; Majchrzak *et al.*, 2013), as well as fostering open meetings on the Internet for individuals with specific practice interests (Butler 2001; Wasko and Faraj, 2000). Nevertheless, many managers of organisations have found that, just because

electronic communication is available, does not necessarily mean that knowledge sharing will occur (Alavi and Leidner, 1999; Orikowski, 1996). Online cooperation and virtual organizing is an area of increasing interest. It is therefore, remarkable that so little empirical research has been conducted into the processes of communication and organization processes of social media, and the ways in which participation in these networks affects knowledge sharing within organisation (Lin, 2001; Monge *et al*. 1998; Wasko and Faraj, 2005). Therefore, the goal of this research is to better understand knowledge flows, by examining social media usage, for work purposes, and its effect on knowledge sharing, human capital and innovation in organisation.

2.4.3   The Importance of Knowledge Sharing for Innovation

Given their resource constraint and their limited shelter from large competitors, SMEs' business environment is characterised by greater uncertainty and more demands for innovation (Kamasak and Bulutlar, 2010). Speed of innovation has accelerated incredibly, because of rapidly evolving technology and shorter product lifecycles (du Plessis, 2007). As a consequence, innovation has become more complex and difficult to attain (Tamer Cavusgil, *et al.*, 2003). Changes driven by technological advances, competition and customer needs, call for organizations to be constantly ready to generate, integrate and reformulate knowledge in new, alternative ways (Teece *et al.*, 1997), that is to possess innovation capabilities. According to knowledge-based economy (Nonaka and Takeuchi, 1995; Leonard-Barton, 1995) and consistently with Shumpeter's vision (1942), as competition destroys the strategic value of one state of knowledge within the organization, it poses opportunities for creating another one. Such challenges require companies to possess abilities for continuous improvements and continuous innovation, while contemporaneously fighting imitation attempts. For these reasons, knowledge is increasingly being recognized as a source of innovation for

SMEs (Sparrow, 2001). Some researches indicated that the knowledge sharing is known as one of the most critical success factors in enhancing innovation in organisations. Moreover, they highlighted its importance and vital role, especially in SMEs (du Plessis, 2007; Sparrow, 2001). For example, in the context of innovation, firms can promote their services and products, if employees share their skills, knowledge, and experiences within the workplace (Yang and Chen, 2007; Alavi and Leidner, 2001; O'Dell and Grayson, 1998). Many researchers (e.g., Camelo-Ordaz *et al.*, 2011; Saenz *et al.*, 2009; Hsu, 2008; Willem and Buelens, 2007; Lin and Lee, 2005; Reid, 2003; Davenport and Prusak, 1999) have highlighted the importance of the knowledge sharing factor to support innovation. As has been highlighted in the study by Nonaka (1994), innovation may be witnessed when employees are involved in knowledge-sharing with their firm, as well as when such shared knowledge creates greater understanding. The argument is further made that innovation and its corresponding effectiveness is far more likely when KS is also taken into account, as noted in the work of Cummings (2004) and Zheng *et al.* (2009). In a comparable vein, Sohail & Daud (2009) have further established that KS-related outcomes include new knowledge creation, meaning business innovation is likely to demonstrate improvement. Such a view is supported by previous studies, which have also insisted that employees' knowledge sharing has positive impacts on a firm's innovation capability (e.g., Liao *et al.*, 2010; Liu and Phillips, 2011).

The work carried out by Rahimi *et al.* (2011) established individuals' creativity, notably within the firm, as able to show improvement through the creation of knowledge, particularly in regards combination, externalisation, internalisation and socialisation. Furthermore, there is a growing volume of support to show knowledge as a key building block for innovation, most specifically for the management of innovation (Darroch &

McNaughton, 2002; Nonaka & Takeuchi, 1995). In this regard, the statement is made by Akhavan & Hosseini (2016) that knowledge-sharing, with the inclusion of collecting and donating knowledge, plays an important role in promoting employees to start innovation. The authors further stressed that such firms need to encourage employees to share their knowledge, to increase skills and know-how, thus prompting innovation in the workplace.

2.5 Human Capital (HC)

Human capital encompasses such employees' competencies as knowledge, skills, experiences, talents, education and qualifications (Kim *et al.*, 2013; Hsu and Sabherwal, 2012; Chen *et al.*, 2009; Edvinsson and Malone, 1998). The human capital is rooted in employees' minds (Lee *et al.*, 2011). Martín-De Castro *et al.*, (2006) stresses that human capital relates to the knowledge which is possessed by employees, be that implied or explicit. Such knowledge can be obtained by firms either by renting or by borrowing. HC stems from genetic inheritance, learning factors and knowledge (e.g. Bontis, 1998; Chen, *et al.*, 2009). Accordingly, the main challenge is how a firm acquires human capital, in order to maximise its goals in uncertain environments.

Firms should consider their employees to be an asset, rather than as a cost, since human capital is a valued factor for firms' performance. In the SMEs sectors, human capital's efficiency and importance is considered to be one of the bases of a successful firm (Roomi, 2013; Ulrich, 1998). Crook *et al.*, (2011) indicates that, for both employees and firms, investment in human capital could produce major productivities in terms of performance. The human capital considered as the most important actor of the intellectual capital, because of its central responsibility for developing organisational learning and innovation (e.g. Schultz, 1961; Brush *et al.*, 2004; Bontis, 2004; Bollen *et al.*, 2005). Human capital is a main driver in terms of creating value for organisation,

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and in achieving operative performance and competitive advantage (Nordenflycht, 2011; Chen *et al.*, 2009; Dokko and Rosenkopf, 2009). Ethiraj and Garg (2012) suggested that a firm with unskilled workers was at the mercy of competitive forces in an uncertain environment. This has the potential to result in failure. A firm needs to invest in HC if it is to enhance its knowledge and skills because these will affect employees' performance and that of the firm as a whole (James, 2000).

In the literature of resource-based view, human capital is an organisation's primary strategic asset. The Resource-based view indicates that human capital is a key resource for nurturing competitive advantage, innovation and company performance. This is probably due to its rarity, since HC is valuable, non-substitutable and not easily imitated (Hsu and Wang, 2012; Kim *et al*., 2012; Galunic and Anderson, 2000). It plays an important role in the generation of ideas, and provides effective implementation of these ideas, which can lead to successful innovation (Klein and Sorra, 1996; Carayannis and Wetter, 2004; Bakry, 2013; Jardon and Gonzalez, 2013). Thus, workers, with good knowledge and skills are likely utilise the organisation by (1) generating new techniques for equipment, processes, production and implementation (2) innovating a new service or product (Wang, 2005).

2.5.1   Human Capital definitions

The concept of human capital is related to the ability of an individual's to accommodate "changes in action", as well as economic growth, by means of their skills and knowledge and skills (Becker, 1964). It signifies, particularly, the extraction of the knowledge possessed by an individual employee's for the purpose of discovering the best solutions for an organisation (Bontis *et al.*, 1998).

Dakhli and De Clercq (2004) recognise it as one of the fundamental constituents of intellectual capital. Dess and Shaw (2001), meanwhile, define "future human capital"

as those smart, sophisticated business people who have talent, and technological know-how. They are internationally intelligent, well-coordinate, and operationally quick. From the social perspective, human capital can be defined as the intrinsic abilities, knowledge and skills which an individual has been able to amass through their lifetime (Laroche and Merette, 1999).

From the point of view of economic returns, human capital is related to investments in education and the acquisition of skills and work experience which can produce returns in the job market (Nee and Sanders, 2001: 392). Human capital is defined by Neergaard *et al.* (2006) as the entirety an individual's education and experience (both general and specific). In contrast, Dess and Picken (2000) define human capital as the collection of the competencies of each employee and manager, as well as their knowledge and capabilities in relation to particular projects. It also encompasses their potential to make a contribution to this reservoir of human capital, in terms of knowledge and aptitudes, by engaging in personal learning.

In general terms, human capital can be utilised anywhere, regardless of where it is employed. Since it is part of an individual, it goes with the person to various organisations and jobs, and can be gainfully used in any situation or workplace. The firm- or task-specific human capital, however, is more precise, and is acquired through training, education or hands-on experience in a particular task in an industry or firm (Au *et al*., 2007). Such capital is, therefore, not easy to transfer from one job or organisation to another, and cannot be translated into income (Becker, 1964).

The discipline of HR often employs the term 'human capital' to refer to people in the workplace, and the collective knowledge, skills, expertise, and the innovative and development capacity held by them (Barney, 2001).

From the aspect of classical economic theory, human capital is viewed as a commodity (Marimuthu *et al*., 2009). The first studies concerning human capital were conducted by economists, including: Becker (1964); Schultz (1971); Mincer (1974), who emphasised the economic gains of venturing in overall and company-explicit training. These studies are founded on a thorough, pragmatic assessment and evens out the dominant thought, suggesting that the development of human capital is the most important aspect in relation to economic achievement.

As per Schultz (1971), there is a similarity between human and physical capital, which is defined as a factor of production, or input into the production process, and incorporates elements, such as machinery, buildings and hardware. The similarity relies on the fact that, predominantly, neither human nor physical capital creates any economic effect. Once an employee receives training, they contribute to the revenue generation and profitability of firms. As can be seen from the argument raised by Schultz (1971), allowing the employee to gain knowledge and skill through special training, gains capital quality.

According to Becker (1964), human capital is categorised as either general or specific. By referring to Becker's (1964) classification, Au *et al*. (2007) define general human capital as generic knowledge and skills, held by employees, not associated with a specific task, but rather applied on a general basis to everyday business operations, and acquired by virtue of work experience and education. General human capital is regarded as transferrable across jobs, organisations and industries. General human capital invested in an individual employee moves without restriction between industries. Au *et al*. (2007) defined organisation or task specific human capital as specialised education, training or knowledge, or work experience related to the performance of a specific task, or to a specific organisation. Becker (1964) emphasises the fact that specific human

capital is characterised by difficulties in transfer between industries, jobs or organisations, and it is consequently impossible to transfer large proportions of income in the labour market.

Becker (1964) additionally argued that specific human capital is also characterised by its ability to increase the productivity of the worker, only at a particular organisation. As a result, the transfer of specific human capital between industries is difficult. On the other hand, the association of education with economic development is verified strongly in the works of Psacharopoulos and Woodhall, (1993) and Hanuschek and Kimko (2000), where its strong association with productivity was confirmed by Denison (1967). Moreover, earnings progress is strongly supported by Becker's (1964) and Schultz's (1971) studies (Hewlett, 2002).

However, recent studies have illuminated much, concerning the term knowledge. For instance, according to Rastogi (2000), the term and the standpoint of human capital is rooted in the statement that knowledge and learning, inspiration and invention, skills and aptitude, cannot be replaced by any other resources. Therefore, they should persistently be followed, and emphasised, in the company's perspective, in terms of competitiveness and surroundings.

The correct calculation of human capital is imperative, since it is a primary resource in economies based on knowledge, and it is also a provider for economic progress, introduced notably in wealth book-keeping (Healy and Cote 2001). Several academics, including Lynn (1999) and Sanchez *et al.* (2000), claim that human capital stands for a contribution to the company, adding further value, bringing about affluence by the contribution of human skills, and possibly by the interruption of so-called knowledge silos (Dzinknwski, 1999).

Assets, such as culture, innovation, and knowledge that cannot be owned by an organisation, are included under the definition of human capital. Databases, software programs, and other physical assets, are categorised as structural assets owned by an organisation. Greenberg *et al.* (1999) and Stewart (1998), identified three aspects that interact and define the strength of an organisation's customer base, as intellectual capital human, structural capital and customer capital.

Within the context of services, human capital includes knowledge and skills of professionals, while software programs are classified as structural capital, designed to support knowledge and skills. The working relationship between clinical and executive professionals, and consumers of the service provided, is classified as customer capital. It is recognised by organisations that human capital is the source of competitive advantage and innovation, as it is shaped by firms' strategy of knowledge management, and leads in achieving organisational goals, as a consequence of implemented plans (Bontis, 2004).

Knowledge, learning and training are considered to be the most critical sources which shape and increase human capital (Hollenbeck and Jamieson, 2015; Hatch and Dyer, 2004).

2.5.2 Learning and Training Development (determinant of HC)

Scholars such as Healy and Cote (2001), have suggested that learning improves the sharing of knowledge in a community, which leads to the acceleration of the velocity of transformation and development within a nation. Furthermore, it generates know-how and competencies, going beyond attaining skills. Education encourages the participation of employees, as well as their efficiency, belief and dedication towards their occupation (Sirková *et al.*, 2014).

The main aim of corporate education and training the enhancement of the skills knowledge, and abilities of employees. By this means, the overall performance of the organization is improved, alongside its human capital and competitive capacity. Education is at the heart of learning. Illeris (2003) views learning in a wide sense, arguing that learning needs to be understood as comprising all those processes which lead to permanent change in capacity. This may be cognitive, physical, emotional or social in nature. The learning concept thus encompasses such areas as: socialization, personal development, qualification and the development of competences.

Many authors have emphasised that training and learning should be parallel and complementary to each other; and at different points of an individual's career it is quite common, and quite right, that one predominates over the other (Qambar, 2015).

In a more elaborate manner, Jacobs, (2003) defined training as a systematic and planned process to change the knowledge, skills and behaviour of employees to achieve organizational goals.

Training, in its simplest definition, is the process of improving the staff members' skills within the organisation's system, whether they are recent or new staff members (Tesone, 2005). It is a process of bringing a person to an agreed standard of skills proficiency, through instruction. Thus, training programmes attempt to teach employees how to perform particular activities or jobs (Jacobs, 2003).

Training is an essential tool for enhancing a person's attitude, skills and knowledge. It guides them towards developing effectiveness and efficiency at work, by bringing improvements, and revising professional knowledge (Armstrong and Taylor, 2017). This is done by enhancing skills that are relevant to work and adopting appropriate attitudes and behaviour towards people as well as work. Hashim (2009) explained that

training is considered a course of action that develops the qualities in human resources, to make them more productive, so that they can contribute to the attainment of organisational goals.

The link between human capital and training and development is drawn by Enyekit *et al*. (2011). According to the scholars, human capital development, and training and development are the same, in essence. This is because the underlying aim of training and development is organising and rationalising skills, human intellect and competencies, before they are used in an organisational setting or at a national level, as these are valuable factors, contributing production, in order to achieve business goals (Armstrong and Taylor, 2014). Furthermore, Enyekit *et al*. (2011, p.63) argued that human capital development "teaches people how to utilise the power of diverse thinking styles, both analytical and intuitive, so that they achieve holistic best practical solution". In fact, it is a process aimed at bringing out values that are embodied in people, in addition to improving their skills and knowledge.

Therefore, it is argued that employees who focus on their learning and training, whether formal or informal, will improve their degrees of knowledge and competence, leading to a superior contribution to the company, in terms of efficiency, in comparison to those with lower levels of knowledge (Smith *et al.*, 2011).

2.5.3   The Human Capital and Intellectual Capital Management Present in SMEs

Intellectual capital is known to be distributed through concentric circles, shifting and travelling from HC in people, i.e. internally, through to relational capital in the environment, i.e. externally. Importantly, the position of structural capital can be witnessed between various other elements of intellectual capital. Structural capital is known to encompass culture, technology, and the various structures of organisations

(Jardon & Gonzalez, 2013). Overall, the corporate culture denotes an organization's traditions, values and social norms. According to Barney (2001, corporate culture has considerable strategic importance as an enterprise resource. Thus, it has a high potential value. Technology encompasses the corpus of knowledge, methods, forms, tools and procedures employed for synthesising the various resources and capabilities in the organizational and productive processes which guarantee efficiency (Andersson *et al.*, 2016). It is mostly dynamic learning processes which drive the accumulation of technological knowledge (Lucas Jr *et al.*, 2014). Internal intellectual capital management blends structural capital with organizational proficiencies to maximise performance (Lahiri *et al.*, 2012). If technology is correctly managed, the performance of machinery, systems and production processes, systems can all be improved. This even applies to the performance of human resources (Ngah *et al.*, 2015). It also raises production capacity, lowers costs, and helps the organisation adapt to its customers' requirements. Thus, the company's performance is improved. Organizations which develop or integrate technology assets will be better placed than their competitors (Jardon and Gonzalez, 2013).

HC only improves performance if it is applied and effectively transferred to those particular tasks that have to be undertaken (Unger *et al.*, 2011). Such tasks are carried out using tools provided by the company for their implementation. Structural capital is the fertile area where HC can prove effective (Jardon and Catalina, 2015). For this reason, the core competencies generated from HC require structural capital.

The management of internal intellectual capital may be seen to represent those key skills and elements that come together in such a way so as to achieve the management of structural and human capital in organisations. One approach encompasses identifying and utilising the individual skills of employees so as to ensure harmony and

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alignment with the corporate culture setting, whereas others might be centred on technology stock, technology policy tools and the presence of such within the firm, and technology and science developments (Renuka & Venkateshwara, 2006). Accordingly, internal intellectual capital management aspects are all consistently and unvaryingly complicated and tacit, which helps to avert simulation and therefore allows high standards of performance to be maintained (McEvily & Chakravarthy, 2002). As an example, management recognised as demonstrating high management capability will be well aligned with the efficient use of knowledge detailed in manuals and databases concerning the varying criteria of global clientele; this therefore achieves a quicker and more effective response to the needs of clients (Ismail, 2014). Importantly, when management are seen to have superior management capability, their presence can prove valuable to businesses through better assessing the way in which resources, such as IT infrastructure, organisational culture and organisational institutionalised knowledge, for example, can be better applied and assigned so as to achieve improved innovation and value creation (Sirmon *et al.*, 2008). In this regard, other studies have taken into account the various constructs encompassing different elements of this core competency, with Newbert *et al.* (2007) and Ruiz Ortega (2010) recognising technological skills whilst Lopez-Cabrales *et al.* (2006) placed focus on managerial capability.

HC may be recognised as intellectual capital management spanning basic to internal. An organisation with a greater wealth of HC is recognised as encompassing personnel that are more prepared, meaning an improved working environment may also be observable (Boselie *et al.*, 2005), which therefore facilitates the amalgamation of human and cultural issues. Through making use of the training and formal education of employees, as well as their work experience and job-based knowledge, businesses are

then well positioned to conceptualise different contractual requirements, effectively implement and supply the necessary transferred processes, deal with and learn from actual feedback, and come up with new and improved approaches to doing business over time. In this same vein, the findings show that this training needs to centre on integrating the organisation's internal resources so as to provide focused expertise on their appropriate management. Such approaches can achieve quality improvement in terms of rent generation and delivered services (Budhwar *et al.*, 2006).

The abilities, knowledge and skills stemming from experience and education, along with incorporated human actors, facilitates the in-depth and wide-ranging understanding of different business-related functions and the corresponding sound implementation of such functions within the necessary timeframes (Lahiri *et al.*, 2012). There is a positive link between HC and the reinforcement of organisational culture, securing employee potential, strategic vision, and flexible design (Lopez-Cabrales *et al.*, 2006), particularly when incorporated within intellectual capital management. In specific regards SMEs, these are seen to vary slightly when compared with larger entities in terms of internal intellectual management (Renuka & Venkateshwara, 2006), with SMEs known to have a less extreme degree of bureaucratic complexity, coupled with increased communication across all dimensions of the organisation. In essence, a smaller operating firm enables a good working environment to be achieved, complete with a higher degree of flexibility, greater employee motivation, and the capacity to identify company objectives (Ngah *et al.*, 2015).

2.6   Innovation

Definitions of innovation have evolved from multiple disciplinary fields such as marketing, economics and engineering (Garcia and Calantone, 2002). Different studies consider innovation at different levels and from different perspectives in terms of the

purposes of analysis. Schumpeter (1934, 1942) defined innovation not only in relation to new markets, but also the introduction of new methods of production, new sources of supply and new organizational practices in any industry. However, innovation not only relates to products, processes or technology, but also involves people as drivers to control the whole development of the new technology and organization of the environment (Carayannis and Wetter, 2004).

Innovation is defined as the main source of key successes for SMEs and industries alike (Macdonald *et al.*, 2001). It is valuable to note that innovation is regarded as a fundamental consideration in studies completed at the national level, across firms and at the industry sector level, and is known to encompass the adoption of a new or otherwise well improved good, service or process, or otherwise a new marketing approach or organisational methods centred on workplace organisation, business practices or external relations (OECD, 2009). The essential notion underpinning innovation is the introduction of fresh new ideas in doing something, especially in relation to product, production and process. Innovation is now so important in daily life that people depend on innovation more than was previously the case in different sectors, such as technological, scientific, educational and industrial (Shavinina, 2003). Jimenez and Vall (2011), argued that organisations consider innovation to be a critical variable to enhance organisational learning.

Innovation can be considered in relation to creativity and new ideas, in particular those who are involved in innovation bringing something new in terms of knowledge, skills, processes and products. According to Tidd and Bessant (2009) "innovation is driven by the ability to see connections, to spot opportunities and to take advantage of them, sometimes this is about completely new possibilities for example by exploiting radical new breakthroughs in technology" (p.7). Given an example of innovation can be seen

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in audio electronic devices such as MP3 and MP4 with special functions such as touch screen, video conferencing and HD recording (Augustus, 2015). This is an example of an excellent product innovation, which is also an incremental innovation of existing technology.

Specifically, innovation abilities include special assets or resources that include technology, products, processes, knowledge, experience and organizations (Nieves *et al.*, 2014). This research defines innovation as the ability to implement new products/services/methods or processes. The term 'ability' refers to the extend firm could deploy and utilize the various available assets to enhance competitiveness. Innovation results from resources, coordination and mechanisms both within and outside firms. Building upon the knowledge-based view, this research considers a firm's knowledge resources to be the primary determinants of the success of innovation.

2.6.1 The importance of innovation

The majority of businesses function in a turbulent setting with significant changes demonstrated across various domains, including in terms of market uncertainties, IT, product life cycles and competitiveness (Dinopoulos & Syropoulos, 2007; Madrid-Guijarro *et al.*, 2009; Roy & Sivakumar, 2012). Without question, innovation is regarded as a critical requirement when pursuing and aiming at achieving growth and survival in such settings (Bohlmann *et al.*, 2012). Furthermore, businesses recognise innovation as being a fundamental factor between success and failure (Govindarajan & Trimble, 2005), with Cooper (2011) considering ambitious firms' goals to be achievable through innovation. In the modern-day world, this is one of the key resources identified as critical when seeking to achieve economic growth and sustainability (Gumusluog & Ilsev, 2009; Atalay & Anafarta, 2011).

Innovation is known to adopt a fundamental role in regards the resources available in businesses, notably through renewal and shaping, with organisational competences and routines also influenced by such resources (e.g., human capital) (Matthews & Shulman, 2005; Gonzalez *et al.*, 2013). Importantly, innovation enables businesses to respond to external pressures and internal weaknesses, and to become a valuable instrument in decision-making (Gonzalez *et al.*, 2013). Furthermore, the view is posited that innovative products and services, and the development of such, is pivotal when seeking to both achieve and retain a competitive edge (Miron *et al.*, 2004). In essence, innovation is fundamental for those businesses aiming to identifying their own position in the market whilst also ensuring longevity in terms of success. During more recent times, there has been much recognition amongst professionals and academics that innovation is valuable and powerful for organisations, as well as other entities (Drach-Zahovy *et al.*, 2004; Kamasak & Bulutlar, 2010).

It is apparent that innovation can have a significant effect on organisational outcomes, with such a viewpoint considered in-depth in various works. This discussion has resulted in much argument, particularly in regards the influence of innovation in specific consideration to the growth and development of SMEs as it is recognised as a success factor in regards satisfying the competitive edge needed. Accordingly, innovation may be viewed as a complicated phenomenon, which is seen to encompass the creation and application of new ideas that subsequently are translated into new products or processes (Lohmüller *et al.*, 2003).

2.6.2   Innovation challenges in SMEs

When considering a lack of resources for SMEs, there is much consideration in the literature (Motwani *et al.*, 1999; Murphy, 2002; Abor & Quartey, 2010), which ultimately could have an effect on innovation's quality and degree across the firm.

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Moreover, Macdonald & Lefang (1998) further state that, when identifying innovation-related activities, SMEs depend on their own resources, with Teece (1996) further positing that it is not valuable to make the assumption that innovation application principles in larger entities can be directly transferred to SMEs, with the latter viewed as a scaled-down version of the larger firm. Accordingly, much research needs to be performed on the way in which innovation is adopted in line with SMEs' characteristics and restrictions, as well as establishing the critical success factors facilitating innovation improvement (Brouthers *et al.*, 2015; Jardon & Gonzalez, 2013). In order to ensure innovation processes can be effectively developed, the management of SMEs need to place emphasis on not only processes, products and technology, but also on organisational culture, as well as its behaviours, beliefs, norms and values (Humphreys *et al.*, 2005; Moghimi & Subramaniam, 2013; Strobel & Kratzer, 2017). There is a need to create a climate of knowledge sharing and also improve the firm's human capital which considered the most important factor conducive to creativity (Ahmed, 1998; Klein and Sorra, 1996; Bashir, 2006). Human capital facilitates both of ideas generation and effective implementation of new ideas which lead to innovation (Bakry, 2013; Jardon and Gonzalez, 2013). In addition, Dalkir and Liebowitz (2011) argues that knowledge sharing among employees considered as a vital key in terms of knowledge creation which provide the opportunity for the employees to exploit the exchanged knowledge and reuse them in order to involve in new ideas generation. Klein and Moghimi and Subramaniam (2013) suggested that innovation happens when the novel ideas have an effective implementation which supported by qualified employees. However, human capital considered as constraint in SMEs due to the limited budget of SMEs comparing with large organisations in terms of the cost of investment in the employees' development and also other reasons such as fairness of employees' turnover

(Brouthers *et al.*, 2015). Consequently, SMEs managers need to find solutions for these factors and take their advantages into consideration. Furthermore, in SMEs, innovation is viewed as complicated and as a direct outcome of happenstance, as much as being a controlled and managed process (Bashir, 2006). Moreover, innovation within SMEs differs somewhat when comparing theory with reality, with evidence supporting SMEs as already somewhat innovative (Pavitt *et al.*, 1987; Acs & Audretsch, 1990). Innovation is critical to survival. Issues may be seen to be elsewhere, with solutions commonly exasperated by the demands made on SME management. Essentially, the management of SMEs are not able to do much beyond dealing with a number of immediate concerns, meaning less pressing considerations cannot be afforded time (Iturrioz *et al.*, 2015). Accordingly, their abilities in this regard are somewhat restricted, as is their view of the world. As such, SMEs contribute significantly to innovation, with policy-makers able to adopt a role in achieving and enabling innovation (Rothwell, 1978). Smallbone *et al.* (2003) further establish innovation-based rate of return as coupled alongside employees' skills for innovative activity to influence SMEs' innovative performance, which depends on the requirement to cultivate knowledge-sharing activities and improve human capital. To sum up, recognising the different viewpoints of innovation, there remains an apparent obstacle facing SMEs in their effective application of an innovation-centred approach (Antonelli, 2014). These further include those key aspects identified in past works, including culture, human capital, knowledge sharing, technology, as well as a wide number of other aspects, which highlight a wide-ranging multi-dimensional view of innovation (Bashir, 2006; Tidd *et al.*, 2001). Importantly, this is considered an obstacle when in the position of an SME owing to their somewhat restricted resources (Jun & Cai, 2003). Considering the support in the literature in regards innovation-related knowledge, this project is centred

on investigating the way in which social media usage for work purposes could be pivotal to facilitating innovation in the SME context, notably through human capital and well-considered knowledge-sharing. As a result, this would further develop greater insight and in-depth awareness of innovation in direct regards SMEs.

2.6.3   Social media and innovation in SMEs

Many employees are confident in using social media-tools in their own lives and accordingly are inspired to involve on a social media-usage inside or outside the workplace.   Therefore, the creativity and innovation can be enhanced by various heterogeneous groups in social media platforms (Lindermann *et al*., 2009; Fuchs *et al.*, 2013). Consequentially, social media are contributing a high potential for generating new ideas and even products as is the case for improvement of open source software in terms of knowledge or idea generating platforms (Osterloh and Rota, 2007; West and Lakhani, 2008; Iskoujina and Roberts, 2015). Therefore, the use of social media for work purposes by employees can improve their skills, behaviours, creativity and knowledge who they are considered a human capital resource in the organisation (Osterloh and Rota, 2007; Wang *et al.*, 2014; Choi *et al.*, 2014).

In recent years, SMEs have become more profoundly confronted with dynamic and complicated issues in regards day-to-day business lives. Accordingly, bringing together cross-organisational networks have become more and more critical to such firms when seeking to devise and implement innovative solutions on an extended resource base (Human & Provan, 1996; Street & Cameron, 2007).

Social media reflected from Web 2.0 that is a phenomenon which demonstrating a notable shift in the World Wide Web (WWW). The term was devised by Tim O'Reilly in 2004 and is used to make reference to the active user participation on the internet

(O'Reilly, 2005). The concept centres on internet content not only being read, observed or listened to, but also created, shared and commented on (O'Reilly, 2005; Von Kortzfleisch *et al.*, 2008). As such a platform rests on active user involvement, Web 2.0 has much potential when it comes to problem-solving and accordingly increasing shared creativity (Sigala & Chalkiti, 2015). In this regard, Enterprise 2.0 is a label used to refer to the resulting Web 2.0 application across a business-related context (McAfee, 2006). In the case of day-to-day business practice, the use of social media, such as through blogs, for example, has been recognised as mainly limited to customer communication and internal knowledge management and information (McKinsey & Company 2008; Unit, 2007). In the SME domain, social media potential has not yet been entirely acknowledged or recognised (De Saulles, 2008a; De Saulles, 2008b). When considering social media in terms of its creative potential, this paper examines whether or not social media could provide SMEs with value, and if so, the extent of such, and whether it is then possible to release and encourage collective intelligence (Atanassova & Clark, 2015). The network made up of SMEs is primarily embodied by their executives, with delegation seen to be limited (Burns, 2001; Soto-Acosta *et al.*, 2014), which further suggests incomplete or insufficient integration within the activities of the network, meaning employees need to become Web 2.0-users through active involvement in collaborative work, such as through knowledge-sharing across the internet platform (Lindermann *et al.*, 2009; Soto-Acosta *et al.*, 2014). Moreover, at the present time, IT is not widely used in SMEs, with its application commonly centred only on daily business considerations and transactions (Levy & Powell, 2005). As a result, organisations need to be taught in Web 2.0 use for business purposes, which can facilitate creativity exchange and innovation ideas across the SME network, or indeed

other networks, which are positioned to improve organisational performance (Choi *et al.*, 2014).

3 CHAPTER THREE: THEORIES AND CONCEPTUAL FRAMEWORK

3.1 Introduction

The conceptual framework is based on theoretical foundations. The aim of this chapter, therefore, is to discuss some theories which are employed to justify the relationship between SMU for work purposes, and innovation, through the mediating of knowledge sharing and human capital. In addition it will consider the role of the perceived usefulness of the SMU experience, and supervisor support, on the adoption of SMU for work purposes in SMEs. Therefore, theories will be explained as platform to justify these relationships with links to each of the variables in the research model. Thereafter, the hypotheses will be presented.

3.2 Theoretical Basis

Reviewing the literature on social media, innovation, human capital and knowledge management, has revealed that several studies were based on the central premise that organisational resources and capabilities underpin and determine a firm's capacity for innovation. From this perspective, both the tangible and the intangible organisational resources, are taken to give the input which, in its turn is mixed and altered by capabilities, in order to produce innovative forms which offer competitive advantages (Abu Bakar and Ahmad, 2010). The following sections describe the social capital (SC), and the knowledge-based view (KBV) theories, with a link to this research, as this study is founded on the perspective of such theories.

3.2.1 Social capital theory (SCT)

The basic premise of social capital theory is that social relationships among people have the potential to be productive resources (Coleman, 1988). Putnam (1995) proposed that

social capital assists the processes of coordination and cooperation, thus offering mutual benefits. Social capital has been defined as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal, 1998, p. 243).

 Social capital permits individuals to utilise resources from other members of their own networks. These resources take a number of forms: useful personal relationships, information, or the capacity to organize groups (Paxton, 1999). Access to individuals beyond one's immediate circle offers access to non-redundant information. This provides such benefits as employment connections (Granovetter, 1973).

Putnam (2000) draws a distinction between "bridging" and "bonding" social capital. Bridging is linked to what network researchers term ''weak ties.'' These are wide connections between individuals who have the potential to provide useful information or novel perspectives for each other. However, they do not normally offer emotional support (Granovetter, 1982). In contrast, bonding social capital may be found between individuals with robust, emotionally close relationships, for instance, family and close friends (Coleman, 1988).

Researchers have recently begun to stress the importance of web 2.0-based linkages as facilitators on of weak tie formations. These form a basis of bridging social capital. For instance, Ellison *et al.*, (2007) claim that since such technologies as photo directories, distribution lists and search capabilities support online relationships, there is a possibility that social media may foster new forms of relationship building and social capital. Social media usage is an activity which is both social and collaborative, as a process of co-creation occurs among individuals or groups and social interaction

(Baumer *et al.,* 2011). The characteristic of sociality in social media has been widely acknowledged and debated by scholars. Large numbers of studies have investigated social media, especially their social aspects (Furukawa, *et al.,* 2007). To aid understanding of the sociality of social media systems, scholars frequently consider them to be a typical kind of ''social computing'' (Ip and Wagner, 2008). In considering social media to be a ''social activity'' (Nardi *et al.*, 2004), social relations (also referred to as social ties) are regarded as a structural aspect of the usage practices of social media (Schmidt, 2007). Bridging social capital may be enhanced by social media, since these support a breadth of social ties, permitting users to create and sustain larger, diffuse relationship networks, which have the potential to offer them resources (Donath and Boyd, 2004; Resnick, 2001; Wellman *et al.*, 2001). Donath and Boyd (2004) hypothesize that social networking sites could extend the potential for forming and maintaining weak ties, since the technology is well-adapted to the cheap and easy maintenance of such ties.

Furthermore, "social capital" may be generated through social media, because social relations exist there. The formation of relationship networks on social media, is aided by such activities as reading, citing and commenting. At the same time, these shape the social structures within social media usage (Ellison *et al.*, 2007). As a result, participating units on the social media platform is possess social capital. This occurs at a number of levels, for example, the individual, the group, and the organizational levels (Akhavan and Hosseini, 2016). Originally, the concept of social capital was developed to describe those beneficial relational resources which exist within the community of social organizations (Tsai and Ghoshal, 1998). Subsequently, it was introduced into the area of research related to information and knowledge management. Many scholars have utilised social capital theory to provide the theoretical foundation for the

investigation of various topics. These include knowledge contribution in electronic networks (Wasko and Faraj, 2005), knowledge sharing motivations in virtual communities (Chang and Chuang, 2011; Chiu *et al.*, 2006), employees' tacit knowledge sharing (Yang and Farn, 2009), communication technologies usage (Lin, 2011), the integration of knowledge in organizations (Robert Jr *et al.*, 2008), the use of emails for the diffusion of information (Huang *et al.*, 2009), and knowledge transfer amongst network members (Chow and Chan, 2008; Inkpen and Tsang, 2005). In terms of enterprise social media applications, the perspective of social capital has been adopted by some researchers (e.g. Leonardi *et al.*, 2013; Fulk and Yuan, 2013). Specifically, social media and blog-related behaviours have also been debated, in the recent literature, from the perspective of Social Capital Theory. Social capital, it has been claimed, is one resource provided by ''ego-centered networks'', which are a kind of blog-based network (Schmidt, 2007). Subsequent research has drawn on this viewpoint in order to investigate how published information may genereate value and social capital through social media (da Cunha Recuero, 2008). Similarly, Raza *et al.*, (2016) supported a similar view, and indicated that social capital can be built through social media platforms, and that such platforms may be regarded as a source of social capital.

Studies have indicated that using social network sites (SNS) mostly increases weaker tie contacts (Ellison *et al.*, 2007; Steinfield *et al.*, 2008). In addition, Choi *et al.*, (2014) discovered that social capital can be created by using social media applications, and that social capital development among organizations fosters innovation. Use of social media application within organizations will, as a result, drive organizational innovation, by means of the continuous transfer of varied knowledge. It is the interplay of weak ties, informal networks, absorptive capacity, boundary spanners, and social capital which facilitate this process.

Another feature of this research, is that social capital can, in itself, also form a theoretical basis for the other aspects in this study, such as human capital, knowledge sharing and innovation. According to Coleman, (1988) social capital plays an essential role in the creation of human capital. Wu *et al.* (2008), have argued that the levels of social capital can augment human capital, by means of discussions and communications between relevant people. Such discussions and communications may take place by using social media tools. Similarly, knowledge is regarded as socially constructed and rooted in the social context. It has even been claimed by some knowledge management scholars that social capital is a key mechanism driving knowledge sharing (Chow and Chan, 2008; Van den Hooff and Huysman, 2009; Kim and Lee, 2010; Kim *et al.*, 2013). Furthermore, those social dynamics which stem from interpersonal and group relationships form a primary determinant of knowledge sharing among employees within the workplace (Van den Hooff and Huysman, 2009; Kim *et al.*, 2013). A number of researchers have utilised this concept has also been used by several researchers in the context of innovation (e.g., Hu and Randel, 2014; Elsetouhi *et al.*, 2015; Akhavan and Hosseini, 2016). Moreover, Chen *et al.* (2012) described SC in terms of the knowledge rooted in interactions among individuals and their network of inter-relationships. These include internal relationships with employees and external relationships with suppliers, customers, experts and so on.

Based on an extensive review of contemporary social media, knowledge sharing and social capital literature, it can be seen that, from the resource-based viewpoint, SC is a valuable organisational resource, since it fosters the individual interactions required for collective action and for the enhancement of knowledge sharing and acquisition (Leana and Van Buren, 1999, Van den Hooff and Huysman, 2009; Kim and Lee, 2010; Kim *et al.*, 2013; Akhavan and Hosseini, 2016). From this angle, this study can conclude that

principles which are derived from SC function in a similar manner to the advantages of social media usage. Therefore, it can be assumed that social media usage for work purposes can enhance human capital and knowledge sharing in the organisations.

3.2.2 Knowledge -Based View Approach (KBV)

The knowledge-based view (KBV) colloquially builds on Sir Francis Bacon's "knowledge is power". Grant (1996) argued that "if we were to resurrect a single-factor theory of value, then the only defensible approach would be a knowledge based theory of value, on the grounds that all human productivity is knowledge dependent, and machines are simply embodiments of knowledge" (p112). The knowledge-based view purports that knowledge is the key resource to sustained competitive advantage (Grant, 1996). In the new economy, in creating a firm's value, knowledge has a strategic position; this encourages the researchers to develop the KBV. It considered knowledge is the core source of an organisation's outcomes and it assumed to be unique resource (Nonaka, 1995; Kogut and Zander, 1992). Other researchers (e.g., Conner and Prahalad, 1996; Grant, 1996; Zheng *et al.*, 2010) argued that The KBV of the organisation is at the centre of the RBV, indicating that the most important source of an organisation's sustainable competitive advantage is its ability to create and utilise knowledge (Prahalad and Hamel, 1990; Kogut and Zander, 1992; Nonaka, 1995; Grant, 1996). This view is supported by other researchers, such as Nonaka (1991), who argued that successful firms are then those with the ability to create new knowledge, distribute it within the firm, and incorporate it in new products and technologies. As well as, knowledge considered as a vital source for competitiveness, which is reflected into innovation (Kandampully, 2002). Successful innovation lean on the amount of knowledge which is possessed by the organisation. The KBV gives a new perspective

for the consequences of process and product innovation (Gopalakrishana and Bierlyb, 2001).

The KBV indicates that to access and utilise knowledge owned by employees (HC), it is important to understand the organisational processes (Grant, 1996). It has developed the view of the firm as a bundle of resources from the RBV, focusing on the most strategically valuable and, perhaps the only, source of competitive advantage. Indeed, one definition of a firm is "an institution where the issues of creating, acquiring, storing and deploying knowledge are the fundamental organisational activities" (Grant and Baden-Fuller, 1995; Grant, 1996). There have been few theoretical contributions on the nature and major assumptions to theoretically frame and empirically test the KBV.

Grant (1996) confirmed that the challenge of the KBV represents effective coordination among of an organisation, since the knowledge they possess is specialised and requires integration. The KBV has been described as a developing theory of the existence, organisation and competitive advantage of the firm. It has as its foundation, the role of organisations in generating, storing and applying knowledge (Grant and Baden-Fuller, 1995). According to Minbaeva *et al.*, (2003) this knowledge will have competitive effects when these are difficult for competitors to replicate. It is been argued that knowledge is embedded in, and present throughout, organisational culture, policies, practices, systems and individuals (Michailova and Minbaeva, 2012).

Several researchers (e.g., Grant and Baden-Fuller, 1995; Grant, 1996), have identified four main assumptions of knowledge in the KBV: firstly, from the value added prospective, knowledge is the firm's key productive resource in terms of contribution to strategic and value added significance. Secondly, from another type of knowledge prospective, knowledge may be seen as comprising information, technology, skills and

know-how. Different kinds of knowledge have various levels of transferability. Transferring tacit knowledge, as compared to transferring explicit knowledge, is slow and costly. Thirdly, from perspective of subject to economies of scale, knowledge is subject to economies of scale and scope. It is more costly to create knowledge than it is to replicate it subsequently. Fourthly, from the cognition prospective, knowledge is created, acquired and stored by individuals. Due to the cognitive and time limitations of human beings, individuals must specialise in their ability to create, acquire and store more knowledge. For example, "employees can extract knowledge and learning via social media for work-related purposes" (Utz, 2016). Lastly, from the knowledge application prospective, the creation of value, for the organisation, typically requires the application of numerous different types of specialised knowledge.

The knowledge-based view of the firm suggests that organisations may best be seen as 'a social community specialising in speed and efficiency in the creation and sharing of knowledge' (Kogut and Zander, 1996: 503). The social capital, which is inherent in the social relations, either inside or outside an organisation may, therefore, be seen as a potentially critical asset in maximising organisational advantage. Where there are high levels of collaboration and goodwill among organisation members, which increase knowledge and stimulating innovation (Nahapiet and Ghoshal, 1998; Perry-Smith and Shalley, 2003; Andrews, 2010). The KBV examines KS through the organisational capacity to integrate knowledge, within existing structures of the organisation, and share that integrated knowledge between individuals (Michailova and Minbaeva, 2012). It stresses the significance of considering knowledge characteristics. For example, it is argued that identifying motivational factors, and knowledge-related factors that create internal "stickiness" of knowledge in organisations, and impede their internal sharing, can provide a way of exploring those knowledge characteristics which

influence the degree of knowledge sharing (Szulanski, 1996). Michailova and Minbaeva (2012) indicated that knowledge sharing does not happen automatically. It may require substantial organisational efforts, aimed at enhancing close relationships among individuals. Accordingly, organisations should invest in systems which are symbolised by continuous social interactions, communication of ideas, sharing of knowledge and other acts associated with the social character of learning, from inside and outside knowledge resources (Minbaeva *et al.*, 2003). The KBV regards the organisation as a set of knowledge-assets. Thus, the role of the organisation involves creating, organising and then deploying such assets, in order to create value from them (Grant, 1996). It is recognised, by the knowledge-based view, that knowledge is a valuable resource within organisations (Nonaka and Takeuchi, 1995, Nonaka and Toyama, 2005). According to the knowledge-based view, the store of knowledge will become available, when it possible for knowledge to be shared among organisational members, by means of donating and collecting. This, in turn, will facilitate the production of new ideas, leading to improvements in product and process innovation (Ferraresi *et al.*, 2012; Wang and Wang, 2012; von Krogh *et al.*, 2012; Liao and Wu, 2010). In addition, an organisation should endeavour to develop strategies to extract knowledge from their HC and improve it. Also, the organisational context can be perceived as the organisation's plan of deploying and sharing knowledge assets. Thus, to better understand knowledge, as a competitive resource, and link it with KS, HC and innovation, this study aims to extend the KBV, in the context of KS and HC. Overall, it is recognised that the integration of both social capital and knowledge sharing, as the most important resource of organisations, allows firms to increase their innovation (Kim and Lee, 2010; Mura *et al.*, 2013; Akhavan and Hosseini, 2016). The RBV and KBV have recently become recognised and have been mentioned in several recent

research articles (Kim and Lee, 2010; Kim *et al.*, 2013). Therefore, based on this discussion, the inclusion of the relational resources in the proposed research can be supported and justified by the "SC, RBV and KBV". Having discussed the theoretical approach underpinning this study's conceptual model, in the next sections hypotheses and factors relationship of the research will be discussed.

3.3   The Research Hypotheses (Research Model)

This study adopts the research model (see **Figure 3-1**). This section aims to explore the studies that have investigated the role of supervisor support and the perceived usefulness of the SMU experience, in supporting SMU for work purposes. Moreover, it analyses previous studies which have tested the relationship between SMU and knowledge sharing, human capital and innovation.

The Conceptual Framework:
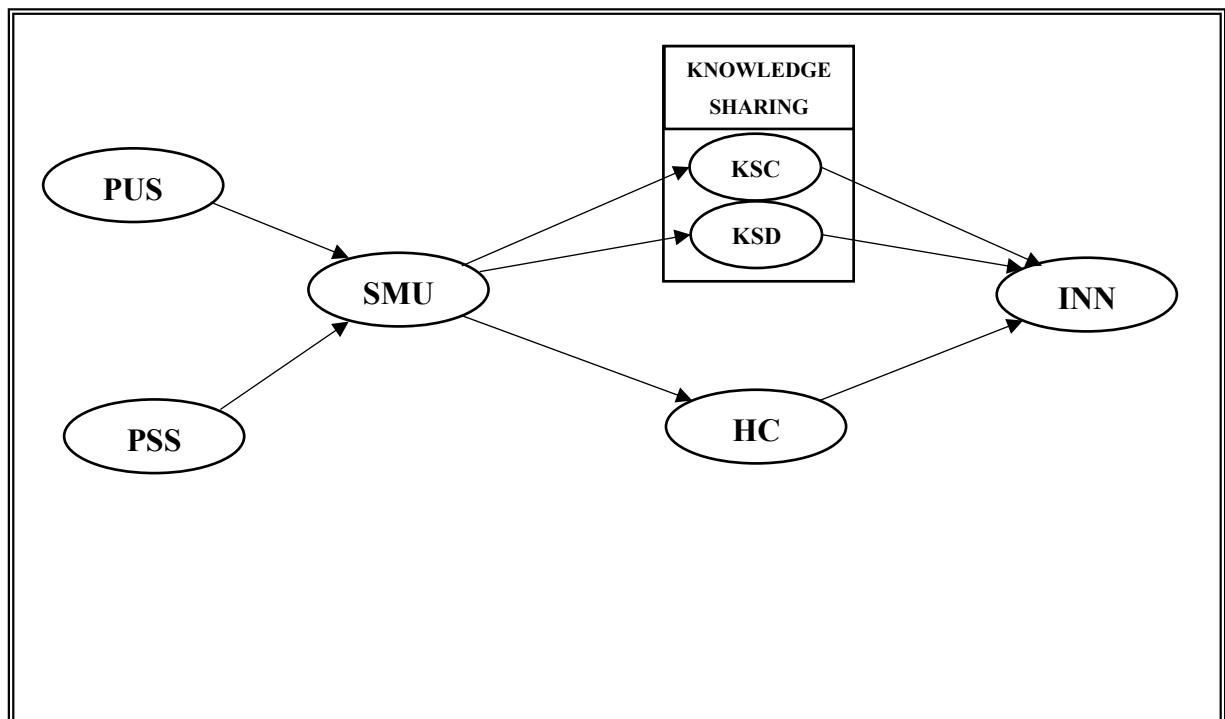
Figure 3-1: The Conceptual Framework

3.3.1 The Relationship between perceived supervisor support (PSS) and (SMU)

Organizational support signifies the extent to which employees perceive that individuals' involvement in development activities is supported by their employers. It also includes individuals' perceptions of the value placed upon their learning, through such supportive organizational policies as skill-based pay systems and tangible rewards (Tharenou, 2001; Tracey and Tews, 2005; Cheng, *et al.*, 2012).

Various studies have considered the significance of relationship of trust between managers and employees, as the foundation of organizational change initiatives (Coeurderoy, *et al.*, 2014). In this respect, Oreg (2006) notes that the supervisors who most effectively circumvent resistance to change are those who can inspire employees and foster a sense of trust. Similarly, Oxtoby *et al.,* (2002) note that each supervisor would be required to adopt the role of "key player", thus cascading the vision rooted in the corporate strategy. Direct supervisors, who are thought of effective leaders in their area of the organisation, have a responsibility to communicate the change project, in terms of an inspirational vision (Neufeld et al., 2007). Indeed, the supervisor's support is central to the mobilization and motivation of employees towards change. Specifically, the type of leadership relationship they have developed with their employees may be linked to employees feeling that change is supported within the context in which they are operating. In this vein, Pardo-del-Val *et al.* (2012) proposed that supervisors should provide their employees with opportunities to question aspects that could pose a threat to changes (Coeurderoy, *et al.*, 2014). Supervisors often have a role to play in both communicating and implementing change, because they are representatives of the organization (Neves and Caetano, 2009). Put another way, supervisors may be regarded as key agents when organizational change initiatives are to be implemented, since changes cascade down through the organization and must be

put into practice at lower levels within the hierarchy (Neves and Caetano, 2009). This will probably have implications for the way employees assess the change and develop change schemata (Lau & Woodman, 1995; Fuchs *et al.*, 2014). More specifically, positive change schema are more likely to be developed by employees who receive the guidance and support of this key organizational entity. As a result, their evaluation of change is more likely to be positive (Fuchs *et al.*, 2014).

According to Herman, *et al.*, (2013), employees usually engage in social exchange relationship with their immediate supervisors and are often affected by them.

Originating in social psychology, the theory of reasoned action (TRA), proposed by Fishbein and Ajzens' (1975) involves the determinants of consciously intended behaviour. This is a somewhat general model designed to provide an explanation for a wide range of human behaviours (Ajzen and Fishbein, 1980). The model has been used successfully both to predict and explain behaviour over a diverse range of settings (e.g., Davis *et al.*, 1989; Kolekofski and Heminger, 2003). According to TRA, an inividual's behaviour is a function of their intention to engage in such behaviour. Subsequently, behavioural intention, for instance towards using a specific technology, can best be predicted by means of attitudinal and normative influences (Fishbein and Ajzen, 1975).

A subjective norm, in terms of TRA, is defined the perception an individual has about what significant others think about the individual carrying out a specific behaviour (Fishbein and Ajzen, 1975). TRA contends that subjective norms are influenced by the other people's normative expectations, as well as the motivation of an individual to conform to these expectations. "Social influence" is the term employed to signify this phenomenon, i.e., how far members of a reference group influence each other's behaviour, feel placed under social pressure to carry out particular behaviours (e.g.,

Kelman, 1958). TRA acknowledges how important social norms are in influencing individual behaviour overall. Such behaviour may arise as a result of a person being susceptible to interpersonal influence. This may involve either compliance with group norms or to the need to improve the image one has within the group (Bearden et al., 1989). A meta-analysis of the connection between innovation characteristics and adoption, Tornatzky and Klein (1982) discovered that the level of compatibility the innovation had with the norms of potential adopters, significantly influenced adoption. Likewise, it was confirmed by Webster and Trevino (1995) that social influences are useful when explaining the adoption and usage of new media.

In terms of the social influence model of technology use (Fulk *et al.*, 1987), such social influences as group norms and co-worker/ supervisor behaviours and attitudes , have the potential to influence the attitudes individuals have about using new technologies. Studies have indicated that social influence has an impacton technology use (Rice & Aydin, 1991). Within the field of education, it has been shown that tudents' perceptions and their use of technology are influenced by the behaviours and attitudes of their instructors (Guo and Stevens, 2011). Webster and Hackley (1997) for example, discovered that the instructor's view of technology may have a significant impact on students' attitudes to both technology and e-learning. According to Kersaint et al. (2003) supervisors who adopt positive attitudes toward technologies are more likely to feel happier about using them and are more inclined to include their subordinates into their attitudes. With regard to social influence and social media adoption, several studies have established that social influence is positively associated with social media use (e.g. Workman, 2014; Curtis, *et al.*, 2010; Guo and Stevens, 2011). Nevertheless, there remains a lack of empirical studies concerning the role of supervisor support for social media usage, specifically in workplace. Consequently, the issue is poorly

understood. For instance, (Charoensukmongkol, 2014) in his study, shows that perceptions of supervisor support negatively affect workplace social media use. He presented, as the major explanation for this that employees consider social media usage to be a waste of time and will be detrimental to their productivity at work. Such a perspective derives from employees' expectation about their supervisors' perceptions regarding the general use of social media in the workplace. However, this assumption is logical, from such a point of view, when the use of social media is conducted for personal reasons, for pleasure or non-work related matters. On the other hand, what about if social media usage became a tool for work purposes and for increasing productivity?. According to Herman, *et al.*, (2013), supervisors will support their employees to be involved in any useful activities which can enhance their work and productivity. Leftheriotis *et al.*, (2014) confirmed that social media usage by employees in the workplace can enhance their work performance.

Therefore, in this study, it has assumed that the perception of supervisor support will be a positive and motivating aspect, in terms of the adoption of social media usage for work purposes and learning. Therefore, this study suggests the following hypothesis:

H1: *There is a positive relationship between perceived supervisor support and social media usage for work purposes.*

3.3.2 The Relationship between perceived usefulness of SMU experience (PUS) and (SMU)

Perceived usefulness and ease of use are the two of the TAM model's major constructs. Justification of the importance of these two variables have already been already presented (Davis, 1989, Venkatesh, 2000, Venkatesh *et al.*, 2008). Perceived usefulness is defined as "the degree to which a person believes that using a particular system would

enhance his or her job performance" (Davis, 1989). The definition of perceived ease of is "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). The following literature highlights the significance of these two factors in the context of behavioural intention in different Information Systems' domains. In the domain of e-commerce, Liu *et al.*, (2010) revealed that perceived usefulness was a significant factor for customers' purchase intentions. Furthermore, in the area of health field, Lai and Li (2010) investigated the factors which affect the acceptance, in hospitals, of a computer-assisted orthopaedic surgery system. The study demonstrated that perceived ease of use and perceived usefulness had a substantial impact on users' intentions to use the system. These results were supported by the work of Mohamed *et al.*, (2011), when they conducted an investigation into the acceptance of e-health services in the United Kingdom and United Arab Emirates. Moreover, Tian *et al.*, (2010) explored the drivers of mobile office services by means of identifying the determinant for perceived usefulness and perceived ease of use. Once again, both these factors were demonstrated to play a significant role in users' behavioural intentions. In the e-learning context, perceived usefulness has been demonstrated to be as a key factor in determining the behavioural intentions of learners, regarding their use of e-learning (e.g. Liaw, 2007; Liu *et al.*, 2009). Additionally, much empirical research has reinforced the significance of the relationship between perceived ease of use, perceived usefulness and behavioural intention (e.g. Hsia, 2007; Lee *et al.*, 2009; Liu *et al.*, 2010; Sánchez & Hueros, 2010; Al-Aulamie, 2013).

Furthermore, regarding social media studies, there also exists extensive empirical evidence, accumulated recently, which has examined both constructs of the TAM model (perceived usefulness and perceived ease of use) on social media use. These have

and they indicated a positive impact, for example (Chintalapati, *et al.*, 2016; Rauniar *et al.*, 2014; Lin, *et al.*, 2016; Teo, *et al.*, 2014; Lacka, *et al.*, 2016).

Although this study acknowledges the importance of both constructs, it has been conducted with respect to only one of them (perceived usefulness). This is not first study to make such segregation as it is consistent with some previous studies (e.g. Erkan, *et al.*, 2016). However, this is because the current study has adopted the use of social media in terms of work purposes, which assumes that there has been previous usage of social media, by employees, for other personal purposes. In other words, this study assumed that social media has already been used, by employees, in their personal life, and they already have experience of such usage. Thus, they already have perceived ease of use, stemming from their pre-adoption stage. In addition, according to the TAM model, their continuing with such usage indicates that they are satisfied in terms of the ease of use perspective (Karahanna, *et al.*, 1999; Xia, *et al.*, 2000; Al-Aulamie, 2013; Rauniar *et al.*, 2014). Therefore, on the other hand, they can give more a accurate judgment in terms of perceived usefulness, based on their experience (direct use), once they intend to redirect their usage toward work purposes (post-adoption stage). According to Rauniar *et al.*, (2014), positive attitudes toward social media should be an outcome of a generally favourable experience of social media usage. In addition, they concluded that a user participates in a social-media-related activity, experiences its advantages, and formulates a future intention to use the activity. The future intention results in further engagement with the social media site, in a fashion which is consistent with the intentions formulated as a result of past experience (Rauniar *et al.*, 2014; Karahanna, *et al.*, 1999).

The literature of social psychology suggests that experience which comes from direct use is amongst the most significant sources of information regarding the target object

(Fazio and Zanna, 1981) and one's own self-efficacy (Bandura, 1986). Additionally, one's attitude toward an object commonly develops by means of behavioural experience (Wood *et al.,* 1995). Thus, behavioural experience enhances one's ability to process informational and social influence perceptions and behaviour through change in efficacy expectancy and outcome expectancy (Bandura, 1982). It has been found that increased direct-use experience influences user beliefs about IT. It also enhances the user's confidence in his/ her ability to comprehend and use IT for performing his/her task (Venkatesh and Davis 2000). The user's perceptions and behavioural intentions, formed through initial persuasion and training, may change as his/ her direct-use experience increases (Venkatesh and Bala, 2008). Rice and Case (1983) found that manager assessments of an e-mail system's general suitability were associated with the duration of usage. King and Xia (1997) found that an individual's perceptions and judgement of new technologies altered considerably over time, as their use experience increased. It has been argued that the temporal effects of use experience in the post-adoption stages, needs to be examined in order to develop better theories of user attitude and behavioural changes (King and Xia 1997; Xia, *et al.*, 2000). However, there is still a lack empirical research surrounding such a concept. Therefore, the following hypothesis has been introduced:

H2: *There is a positive relationship between perceived usefulness of social media usage experience and social media usage for work purposes.*

3.3.3 The relationship between social media usage (SMU) and knowledge sharing (KS)

The use of social media offers an opportunity to transform organization-wide knowledge sharing, at workplace, from a sporadic, centralized process of knowledge management, into a continuous flow of online knowledge exchange, surprising

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interpretations and re-uses, and dynamic emergence (Majchrzak *et al.*, 2013; Oostervink *et al.*, 2016). Social media have been found to enhance organisational knowledge sharing between geographically dispersed co-workers (Evans *et al.*, 2013; Maulana, 2014). Some social media technologies were designed to promote knowledge sharing (e.g. online communities and blogs) and knowledge creation (e.g. wikis and crowd-sourcing) (Meyer, 2010). Social media can supply endless reusable knowledge, through user-generated content (Kane and Fichman, 2009). Moreover, social media allow people to maintain large numbers of electronic connections. Such connections can be strong enough to foster trust, common values and deep understanding, thus facilitating knowledge sharing between users (Bharati *et al.*, 2015).

As a result from other angle, social media usage is a social activity, and a collaborative process of co-creation among individuals or groups (Baumer *et al.,* 2011). With regard to the sociality of social media systems, researchers often consider them to be a typical form of ''social computing'' (Ip and Wagner, 2008). Consequently, because social relations exist in the social media, ''social capital'' is correspondingly created through social media practices (Raza *et al.*, 2016). In addition, several researchers indicated that social media is considered to be a social capital platform. Indeed, it has the same functions and facilities, especially in terms of supporting the value of social interaction and relationships, in terms of knowledge exchange (Ellison *et al.*, 2007; Wasko and Faraj, 2005; Li, *et al.*, 2015). Thus, according to social capital theory, social interaction influences the willingness of employees to share knowledge (Nahapiet and Ghoshal, 1998). Previous KM studies have identified social capital as a prominent factor in encouraging knowledge sharing (e.g., Inkpen and Tsang, 2005; Wasko and Faraj, 2005; He *et al.*, 2009; Wei *et al.*, 2011; Hua *et al.*, 2013). Chiu *et al.* (2006) presented empirical evidence regarding social capital's positive impacts on knowledge sharing

within virtual communities. Furthermore, Chang and Chuang (2011) studied the key antecedents to influencing knowledge sharing in a virtual community. They integrated the dual theories of social capital and individual motivation. Moreover, recent KM studies have considered social capital as the major facilitator of organisational knowledge sharing (Inkpen and Tsang, 2005; Wasko and Faraj, 2005; Chang and Chuang, 2011). Terry Kim *et al.,* (2013) investigated how social capital, including structural, relational, and cognitive social capital, affects organisation performance through knowledge-sharing processes behaviours: knowledge collecting (KSC) and knowledge donating (KSD). Additionally, Hau *et al.* (2013) studied the impact of individual motivation and social capital on explicit and tacit knowledge sharing in seven firms in Korea Advanced Institute of Science and Technology. The analysis results of such a study confirmed that reciprocity, enjoyment, and social capital contribute significantly to enhancing employees' tacit and explicit knowledge sharing intentions.

According to Islam *et al.*, (2012), Knowledge sharing is a social exchange process taking place between individuals, between individuals and organisations, and from one organisation to another. Therefore, several further empirical studies have provided evidence of the important effects social media usage has on knowledge sharing. According Lin *et al.*, (2001), social media usage can enhance online knowledge sharing. Such social media technologies as social networking sites, forums, blogs, micro blogging tools and wikis, as agreed by Osatuyi (2013), are developing into a dependable platform for information sharing in order to target audiences in a timely fashion. Moreover, it has been specified by many researchers that, social media plays a significant role in knowledge sharing. Ma and Chan (2014) argue that online social media relationships form an extension of the users' physical world relationships. They

further suggested that relationship connections are formed by individuals, using social media to offer improved, and more efficient ways to maintain contact with their connections, both formally and informally. Social media use may, therefore have an influence on people's behaviour, especially their knowledge sharing behaviour. A study by Ma and Chan (2014) uses the theory of belonging and the intrinsic motivation of altruism to examine the factors which contribute to knowledge sharing. 299 questionnaires were distributed to the post-secondary students in Hong Kong. Their major hypothesis was that a significant relationship exists between the knowledge sharing and online social media platforms. Their results supported this hypothesis. Tseng (2008) observed that people can extract and store knowledge, as individuals or in groups, by using social media. This facilitates the sharing of with other departments in the same organisation, with business partners, customers, and experts worldwide. Technology-mediated environments of this kind can assist knowledge accumulation by the flexible way in which information is processed and presented (Yu et al., 2009). Previously, Ruppel and Harrington (2001) had found that members of any community are more likely to use social media if they receive encouragement, have ability, and have the opportunity to share knowledge with other people. It has been suggested that technology, such as social media –Weblogs, Wiki, Twitter, data warehouses, Intranets and electronic whiteboards, may prove useful tools for creating communities of practice (Leuf and Cunningham, 2001; Tseng, 2008; Hsu and Lin, 2008; Cole, 2009) and hence, improve knowledge sharing. In addition, Assegaff *et al.*, (2016) claim that social media, with all its features, presents a great opportunity for effective use as a KS tool. Therefore, bearing in mind the findings of previous studies, the following hypotheses were formulated:

H3: *There is a positive relationship between social media usage for work purposes and employees' knowledge sharing.* This hypothesis is classified into the following sub-hypothesises:

H3a: *There is a positive relationship between social usage for work purposes and knowledge sharing- collection.*

H3b: *There is a positive relationship between social usage for work purposes and knowledge sharing- donation.*

3.3.4 The relationship between SMU and human capital (HC)

Human capital refers to people in the workplace, and the collective knowledge, skills, expertise, innovative behaviour and development capacity held by them (Smith *et al.*, 2011). The majority of studies agree that human capital consists of knowledge and skills possessed by individuals (Becker, 1964; Stewart, 1998; Edvinsson and Malone, 1998; Davenport, 1999; O'Sullivan and Stankosky, 2004; Subramaniam and Youndt, 2005; Chen *et al.*, 2009; Santos-Rodrigues *et al.*, 2013; Nieves and Haller, 2014). However, some of these studies added other characteristics to their definition, such as individuals' experience (Edvinsson and Malone, 1998; Santos-Rodrigues *et al.*, 2013; Nieves and Haller, 2014); individuals creativity' (Stewart, 1998; Edvinsson and Malone, 1998; Subramaniam and Youndt, 2005; Bueno *et al.*, 2011).

In this regard, Moqbel (2012), indicated that social media helped increase creativity of employees. He found that social media usage in the workplace has a positive relationship with innovative behaviour. Furthermore, Peppler, (2013. P, 194-195) in his book, states that it has been mentioned in the chapter "social media and creativity" that social media usage is an important tool, which can generate and enhance the individual's creativity.

Human capital refers to the tacit or explicit knowledge which people possess, in addition to their ability to generate it (Martín-de-Castro *et al.*, 2006). Furthermore, Martín-De Castro *et al.*, (2006) emphasis that HC relates to the tacit and explicit knowledge possessed by employees. As a result, Panahi *et al.*, (2016) stated that the role of mutual trust enables better interaction for tacit knowledge, if a suitable space, such as social media is provided. In addition, Kaya and Erkut, (2017) argue that social media is a lubricant, not only for tacit knowledge transfer, but also for tacit knowledge accumulation. Furthermore, Wagner *et al.*, (2014) indicated that social media tools have the potential to facilitate tacit knowledge sharing.

Olaniyan *et al.*, (2008) defined organisation or task specific human capital as specialised education, training or knowledge, or work experience related to the performance of a specific task, or related to a particular organisation. Additionally, as can be seen from the argument raised by Schultz (1971), allowing the employee to gain knowledge and skill through personal learning or training, improves capital quality.

In this respect, social media is an extensive virtual community, considered to be a vital factor in enhancing organisations' and individuals' knowledge. Thus, an organisation's members can build a varied relationship, with different kinds of people, which can enable them to exchange knowledge with, and gain new ideas from those people. Furthermore, it can extend their experience (Beck, *et al.*, 2014). Leung, *et al.*, (2015) suggested that users of social media can capture new experiences and manage a variety of contents. Furthermore, in terms of learning and training, Dabbagh and Kitsantas, (2012) indicated that personal learning can be cultivated through social media. Puijenbroek, *et al.*, (2014) discovered a positive relationship between employees, who make more use of social media in their work, and feel that they learn a lot, compared to employees who use social media very little or not at all in their jobs. Furthermore,

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García-Peñalvo, *et al.*, (2012) argue that social media tools are facilitating an increasing access to knowledge and training for individuals. In addition, they indicated that individuals can gain different skills through social media.

Social media such as blogs, wikis, YouTube, Twitter, and Facebook do not have a solely social purpose. Corporations and other big organizations have begun to make use of social media not just as a means of increasing communications with customers, and for wider branding efforts, but also as way to improve learning and knowledge within their organizations (Huang *et al.*, 2010). Lifelong learning is important in creating multi skilled human capital capable of dealing with continuous technological change (Jessup, 2014; Knipprath and De Rick, 2015). Since knowledge is not static, it is essential for workers to be offered opportunities to continue learning during their whole lifetime. In order to foster lifelong learning, organisations should be encouraging their members to learn via social media and to use these media for knowledge sharing, for the purpose of enhancing skill mobility. This demonstraates that social media influences human capital (Machlup, 2014). With the rapid progress of firms restructuring and the diversification of manufacturing, the gap between the needs of technological knowledge and the abilities of human capital skills will widen (Knipprath and De Rick, 2015). Therefore, greater opportunities for re-education through training and informal learning should be made available to upgrade the quality and skills of the workforce (Pykett and Enright, 2016). According to the knowledge based view, knowledge regarded as the key resource that makes up organisational capability or knowledge-based capital. However, if the knowledge remains isolated within particular individuals or units, it is difficult for a firm to maximise its use of existing knowledge and accrue or develop its HC. External knowledge sharing is therefore important in exploiting knowledge to develop HC (Hsu and Sabherwal, 2012). Since online knowledge sharing

comprises the transfer or distribution of knowledge from one person or group to another via social media (Hsu, 2008; Karagiannis *et al.*, 2008), it forms an essential aspect of the leveraging, creation and spreading of knowledge. It represents a vital process for enterprise knowledge management (Small, 2006). Online knowledge sharing, by means of social media, can directly increase the codified knowledge and skills of the recipient. Feedback and discussion may then enable the knowledge provider to deepen their understanding of their own knowledge (Ipe, 2003; Puijenbroek, *et al.*, 2014). Furthermore, effectiveness of learning may be promoted through the interaction and personal contact involved in online knowledge sharing. In addition the knowledge structure amongst staff may be altered, leading to improved individual performance (Huysman and deWit, 2004; Chao *et al.*, 2011). From the above discussion, it can be seen that arrangements which support online knowledge sharing, both by means of social media platforms and between employees, will facilitate the development of organizational human capital. Firms invest in training programmes to build their employee human capital, in order to develop firm-specific employee skills and abilities (Hashimoto, 1981; Black and Lynch, 1996). Schultz (1961, p. 3) argued that human capital can be augmented by social interaction through the acquisition of knowledge and skills. According to Nahapiet and Ghoshal (1998) social relationships in the context of the wider community, have been demonstrated to be a significant factor in the development of human capital.

On the other hand, the use of social media is not only a social activity but also a collaborative process of co-creation among individuals or groups (Baumer *et al.,* 2011). Scholars have recognised and debated the characteristic of sociality in social media, and many studies have explored social media, with particular reference to their social aspects (T. Furukawa *et al.,* 2007). When social media is taken to be a ''social activity''

(Nardi *et al.*, 2004), social relations are treated as a structural aspect of social media usage practices (Schmidt, 2007). Bharati *et al.*, (2015) argue that the relationship between individuals, and their social media interaction can produce online social capital.

Thus, social capital is correspondingly created through social media practices. In this regard, social capital is viewed as a social networking aid which helps members of society to work competently and efficiently, by using the knowledge that they gain through the networks to which they belong (Kankanhalli *et al.,* 2005). Consequently, human capital is created by social capital that displays the knowledge, learning and skills that individuals possess (Coleman, 1988; Daniel *et al.*, 2003). Social capital, in short, manages the relationship between diverse sets of individuals in society, through various means of communication, which can be maintained through the use of social media tools (Gibbons and Waldman, 2004; Raza *et al.*, 2016). The development of human capital is facilitated by access to expertise and skills, external to an organisation, and the promotion of knowledge sharing (Aryee *et al.*, 2016). External expertise constitutes relational or customer capital, which is obtained through knowledge of market channels, and acquired from a relationship with suppliers, customers and industry associations (Jean *et al.*, 2014). In short, the basis of human capital is tapping into the knowledge of an organisation's external relationships (Tapscott, 1996). The role of the organisation is to facilitate the diffusion of information that employees obtain, from external relationships, through conversations, training and workshops, so that knowledge constituting intellectual capital can be created (Shorunke *et al.*, 2014). Social associations, through social media, are critical in terms of impacting the progress of human, as well as intellectual, capital (Garavan *et al*., 2001; Treem and Leonardi, 2013). It can be seen from the above argument that social media usage can enhance and

improve human capital. However, to the best of this researcher's knowledge, there is, as yet, no empirical study yet which has examined the relationship between social media use and human capital. Therefore, with such findings in mind, the following hypothesis was formulated:

H4: *There is a positive relationship between social media usage for work purposes and human capital.*

3.3.5 The Relationship between (KS) and Innovation (INN)

Businesses are able to make use of knowledge-based resources through ensuring a culture of knowledge-sharing amongst staff, not only on an individual basis but also in a team setting (Davenport & Prusak, 1998; Damodaran & Olphert, 2000; Cabrera & Cabrera, 2005). Studies have shown that knowledge-sharing demonstrates a positive link with the achievement of product development projects, team performance improvements, and innovation (e.g., Hansen, 2002; Collins & Smith, 2006; Lin, 2007; Mesmer-Magnus & DeChurch, 2009).

A number of academics (e.g., Reid, 2003; Lin & Lee, 2005; Willem & Buelens, 2007) posit the view that businesses are positioned to create their own ideas-generation and innovation-development opportunities through the adoption of KM processes, especially KS. In the view of Rodan & Galunic (2004), new ways of problem-solving can be devised by members of the team, who might also be involved in other innovative activities if they are positioned to benefit from and gain access to knowledge. In this vein, other scholars, such as Wang & Wang (2012) and Skerlavaja *et al*. (2010) recognise the potential of a firm to achieve innovation as stemming from the experience, knowledge and skills of staff in regards value-creation. Furthermore, the conclusion is drawn by Tsai (2001) that innovation and ideas for new products show

improvement when there is the creation of knowledge, with other scholars stating that, although firms need to partake in the generation of knowledge, more importance is assigned to KS (Alavi & Leidner, 2001). Furthermore, other writers in the field (e.g., Nonaka & Takeuchi, 1995; Nonaka *et al.*, 2006; Cheng, 2012) have made the suggestion that employee-embedded knowledge needs to be shared in order for new mental processes and routines to be developed, which, in turn, could lead to problem-solving.

The capacity of employees to share tacit knowledge and accordingly change it to explicit knowledge through collecting and donating knowledge is highlighted by Nonaka & Toyama (2005) and Lin (2007) as more expected when it comes to creating and ensuring collective learning. Moreover, it is recognised that a business culture that is able to achieve knowledge-sharing is able to achieve improvements in terms of product and process innovation capability (Tsai 2001; Dougherty *et al.*, 2002; Jantunen 2005; Michael & Nawaz, 2008; Mehrabani & Shajari, 2012). Such knowledge-related activities enable and position staff to reconfigure and better apply existing knowledge in a new way so as to achieve task change and development; this, subsequently, creates new knowledge that may be used for process and product innovation (Al-Husseini & Elbeltagi, 2014; 2015). Knowledge-sharing, specifically in mind of process and product innovation, is seen to have much relevance and value, as has been posited in various literature. As an example, Cohen & Levinthal (1990) recognised the interaction amongst individuals with different knowledge as being able to improve the overall position of the firm to demonstrate innovation. Furthermore, it is noted in the work of Boland & Tensaki (1995) that a firm's innovation capability stems from interactions between people and/or groups that together hold varying types of knowledge. In a comparable vein, a number of other authors have stated that knowledge-sharing

amongst employees makes up a critical stage in the organisational knowledge-creation process, meaning that, if it is not effectively performed, a number of significant obstacles can hinder the development of this process, which ultimately leads to a lack of efficiency in innovation (Ipe, 2003; Chang *et al.*, 2007).

Empirical works carried out more recently provide further validation for the link between innovation and knowledge-sharing, with Seidler-de Alwis & Hartmann (2008) identifying those firms that encourage knowledge-sharing processes as achieving a greater degree of success in innovation. In this regard, in the work conducted by Swan *et al.* (2007), which centres on the elements influencing innovation in the biomedicine sector, recognised a positive link between innovation and knowledge-sharing. Furthermore, the conclusion was drawn by Brachos *et al.* (2007) that, when those factors recognised as pivotal in motivating individuals to share knowledge are identified, there is an improvement in innovation witnessed. A survey utilising a sample of 418 employees of five-star hotels in Korea was carried out in the study of Kim *et al.* (2013), which accordingly established a positive link between the donating and collecting of knowledge and employee service innovation. When taking a sample of employees from international tourist hotels in Taiwan, the empirical work of Hu *et al.* (2009) highlighted the link between the knowledge-sharing of employees and service innovation as being both strong and significant. Other works on knowledge management and businesses have come to acknowledge knowledge-sharing amongst employees as improving performance across firms, such as in the sense of innovative capability and absorptive capacity (e.g., Liu & Phillips, 2011; Hau *et al.*, 2013).

Moreover, the suggestion was made in the work of Darroch & McNaughton (2002) that knowledge management processes, namely the sharing, acquisition and responsiveness of knowledge, were positioned to improve significant and incremental innovation

amongst firms operating in the New Zealand context. On the other hand, however, knowledge-sharing was found by Jantunen (2005) as having no significant relationship with innovation, whereas knowledge adoption was seen to have a key role in innovation support. Furthermore, when taking a sample of 87 employees working for R&D departments in Spanish innovative organisations, the empirical findings highlighted a positive link between innovation performance and knowledge-sharing (Camelo-Ordaz *et al.*, 2011). Moreover, when conducting a survey amongst 172 employees from 50 large-scale businesses in Taiwan, Lin (2007) completed an analysis and accordingly established that employee willingness, both in terms of donating and collecting knowledge, facilitates the business in achieving innovation capability improvements.

The mediating role adopted by knowledge management, as analysed by Huang & Li (2009), was considered amongst Taiwanese organisations detailed on the China Credit Information Service Incorporation, in relation to knowledge acquisition, sharing and application of the link between innovation performance and social interaction, with consideration to technical and administrative innovation. The findings show that social interaction assists organisation's members in gaining social capital and further developing knowledge-sharing and adoption, ultimately giving rise to innovation development. In line with the data garnered from 198 employees across four hospices and palliative care organisations, as completed in the study by Mura *et al.* (2013), it was found that knowledge-sharing behaviours are able to improve innovation in regards ideas promotion and implementation. More so, a positive relationship was identified by Chen *et al.* (2010) between innovation, and the sharing and creation of knowledge in the presence of a supportive environment that inspires and fosters knowledge transfer into innovation, whereas organisational structure was found to weaken such a link. The work carried out by Porzse *et al.* (2012)—notably a qualitative study within the field of

professional services in Eastern Europe—recognised knowledge as having a unique link to innovation, implying that collective organisational knowledge is positioned to encourage innovation. Moreover, it was found in the study by Ferraresi *et al.* (2012) that the KM processes encompassing the capturing, sharing and application of data were significant and influential when considered in line with innovation, notably through strategic orientation amongst and across firms operating in Brazil. In this vein, a pilot study comprising a sample of 209 employees hired by technology organisations in China was carried out in the 2012 work by Wang & Wang, and accordingly found that innovation mediated the link between operational and financial performance, and knowledge-sharing. Further, the interrelationships present between internal KS, external knowledge acquisition, and product innovation were analysed by Yang (2011) across software organisations based in China. The conclusions drawn suggested the ability of external knowledge acquisition in improving product innovation in firms more so than internal KS.

In addition, in the Chinese context, the effects of social capital and extrinsic incentives on team innovation were investigated and examined by Hu & Randel (2014) through consideration to the mediating role of knowledge-sharing, with the scholars subsequently identifying a significant and positive link between innovation and knowledge-sharing. The data were gathered through the application of survey with 230 respondents, notably employees of various organisations, by Akhavan & Hosseini (2016), with the conclusion drawn that there is a positive link between innovation and KS.

Despite the fact that past works have examined the link between innovation and the sharing of knowledge, thus far, there is a lack of research carried out in mind of analysing knowledge processes and their effects on process and product innovation, as

reiterated by Subramaniam & Youndt (2005). This pinpoints the need to complete further works centred on dealing with the effects of knowledge-sharing on innovation (Xu *et al.*, 2010) across developing regions, with particular emphasis placed on the KSA. It is in mind of this that the present work seeks to consider this issue in order to examine the way in which various knowledge-sharing process aspects, including the donating and collecting of knowledge, can influence and effect innovation in the SME domain. Drawing upon the above arguments, this study formulated the following hypothesis:

H5: There is a positive relationship between knowledge sharing and innovation. This hypothesis is classified into the following sub-hypothesises:

H5a: *There is a positive relationship between knowledge sharing- donation and innovation.*

H5b: *There is a positive relationship between knowledge sharing- collection and innovation.*

3.3.6   The Relationship between HC and Innovations

Prior works have considered HC to be a critical innovation-related resource, as noted in the work of Elsetouhi *et al.* (2013), with various research recognised as having examined and accordingly tested the direct link believed to be present between innovation and HC, with a positive link established through such works (Hayton, 2005; Bornay-Barrachina *et al.,* 2012; Elsetouhi *et al.*, 2013). The abilities possessed by staff in regards knowledge-creation have, over the years, rested education and the variation in knowledge across various areas (De Winne *et al.*, 2010). In more large-scale organisations operating in the technological domain, for example, such knowledge is regarded as being a key factor underpinning the introduction of new services and

products (Smith *et al.*, 2005). It is in this regard that firms are recognised as needing to create an innovative culture, notably through listening and responding to employee needs with the acknowledgement that they are a key avenue facilitating new ideas generation and application (Wei *et al.*, 2012). Similarly, Marvel & Lumpkin (2007) came to draw comparable conclusions, but ultimately directed their research attention towards HC and more extreme innovation. Moreover, a number of other scholars in the field, including Dakhli & De Clercq (2004), Wu *et al.* (2008) and Zerenler *et al.* (2008), for example, made the statement that innovation could be encouraged by staff through knowledge, learning, skills and training, with the work of Zerenler *et al.* (2008), for instance, considering innovation performance amongst firms operating in the automotive supply arena. In addition, employees with creativities, excellent experiences, managerial capabilities, professional skills, and specialities, are all seen to have a positive influence on new product development (Barczak and Wilemon, 2003).

In this way, HC has been seen to positively influence the development of new products across those organisations operating in Taiwan (Chen *et al.*, 2006). On a comparable footing, it has also been seen in the work of Schneider *et al.* (2010) that employees' skills and values can be positively linked with product innovation in the specific field of manufacturing. On the other hand, those seen to be less proficient and as having a lower level of such skills could ultimately prove to hinder the progress of innovation. Accordingly, it would be accurate to state that those teams with a more wide-ranging degree of experience and education may be more likely to present new ideas and solutions to problems (Musteen & Ahsan, 2013).

Product innovation is seen to be carried out in SMEs in line with HC development—a point raised by Branzei & Vertinsky (2006). Pizarro *et al.* (2009) have examined the effects associated with employees' skills and their individuality and value in line with

product innovation, with examination carried out in the context of Spanish manufacturing firms demonstrating a significant degree of innovation from their R&D activities. The findings highlight a notable link between innovation and HC-related aspects, with HC individuality seen to provide a clear, strong input in terms of innovation as opposed to firm value. Competence in this regard is recognised as a key foundation contributing to the capacity to achieve innovation.

Competency rallying—a term assigned by Katzy & Crowston (2008) in mind of explaining the recognition and subsequent progression of skills and abilities—is seen to support technical innovation. In this regard, relationships between staff competence and firm innovation have been recognised by Leiponen (2005) and Bayo-Moriones *at al.* (2008) as complementarity. Should an organisation be recognised as possessing the skills and capabilities deemed necessary, they are then more likely to be able to partake in valuable innovation (Holbrook & Hughes, (2000). Importantly, it is noted in the study of Hayton (2005) that human capital positively affects innovation in the case of high-technology initiatives. It is in mind of this that the hypothesis outlined below has been devised in this work:

H6: *Innovation is directly influenced by human capital.*

3.3.7 The relationship between (SMU) and innovation (INN) through the mediating impact of (KS) and (HC)

Social media tools are recognised by Jue *et al.* (2009) as an approach to surviving in what is seen to be a fast-moving and constantly changing global market: should leaders demonstrate commitment to achieving and maintaining a competitive edge, there is then a need to ensure involvement with and commitment to both employees and partners. A competitive edge is critical, and centres on enabling a firm to outperform others in its

field, such as through the presence of access to natural resources, highly skilled labour, high-entry barriers and geographic location. Moreover, a competitive edge may also be seen amongst those firms with access to new technology (Ahmad *et al.*, 2014). In line with the resource-based view adopted by the organisation (Barney, 2001), an organisation's overall competitiveness ultimately rests on the resources it has in its control, which allow it to separate itself from its competitors and that are not easy to replicate (Zaridis, 2009). As a result, the indication is made by Klewitz *et al.* (2014) that innovation amongst SMEs is critical and is recognised as one of the most important success factors in achieving a competitive edge. Such innovation warrants creative thinking, the creation and development of best practices, the capacity to enable and achieve business-related learning, and bringing together and applying new ideas and knowledge from various forms and situations (Hislop, 2013). In the view of the knowledge-based perspective adopted by organisations (Grant, 1997), knowledge is viewed as one of the most critical assets and is unique to a firm. There is the wide acknowledgement that critical knowledge can be created on an internal basis (Nonaka, 1994). Nonetheless, firms experience difficulties in creating all required knowledge internally as a result of rapidly changing environment, rules of competitiveness and technologies. Collecting knowledge and information from a number of different sources in the external environment of a firm is pivotal when seeking to achieve innovation; thus, SMEs are able to enhance their own innovative position and knowledge through ensuring their human capital is enhanced and their labour force's skillset is leverage through knowledge transfer, not only within but also across the boundaries of the organisation (Evans *et al.*, 2013). As a result, there is a need for organisations to be willing to utilise new social media methods and platforms in order to enable creativity exchange and innovation within the SME domain

(Lindermann *et al*., 2009; Choi *et al*., 2014). As noted by Moqbel (2012), social media is well positioned to improve innovation owing to its position in terms of facilitating staff in garnering access to and appropriately utilising resources so as to ensure innovation success. Lastly, in consideration to the preceding sections (3.3.1, 3.3.2, 3.3.3 and 3.3.4), which have considered SMU as demonstrating a positive effect in terms of KS and HC, and the positive link to innovation, the hypothesis outlined below has been devised:

H7: *There is a positive relationship between social media usage for work purposes and innovation through the mediating effect of knowledge sharing and human capital.*

4 CHAPTER FOUR: METHODOLOGY

4.1 Introduction

Chapter 3 presents the theoretical aspects of the relationship between perceived supervisor support (PSS) and perceived usefulness (PUSE) of social media when used for work purposes (SMUWP), as well as the impact of SMUWP on innovation through the knowledge sharing (KS) process and in reference to human capital (HC). This chapter details the research methodology employed to achieve the research objectives and solve the research problem. It refers to how research is implemented scientifically. Researchers generally adopt multiple logical steps when studying a research problem, to ensure effectiveness. Therefore, this chapter identifies the steps employed in this thesis systematically as follows: firstly, Section 4.2 presents the philosophical assumptions that underpin this study, and Section 4.3 outlines different types of approach to research. Then, Section 4.4 describes the research methods implemented, and finally, Section 4.5 presents the research design and strategy.

4.2 Philosophical Assumptions

Exploring the philosophical assumptions underpinning a study is important when undertaking any research, and greatly benefits the researcher (Crossan, 2003). Easterby-Smith et al. (1991) recognized that understanding the philosophical assumptions guides the researcher when choosing and applying the relevant research methods. This section illustrates and justifies the research philosophy, the paradigm of inquiry, and the research approach adopted in this study.

4.2.1 Research Philosophy

Research philosophy concerns the nature of knowledge and truth. In terms of empirical studies, it considers sequential matters, and how these may be applied to the research (Saunders et al., 2012).

The distinction between empiricism and rationalism was extensively investigate by such philosophers of ancient Greece, as Aristotle and Plato. (Hjørland, 2005).

According to Howell (2013), empiricism makes the assumption that reality is founded on what can be seen and observed. Thus, in order to "know" something, one must be able to test it, by means of experience. In the West, proponents of the philosophy of empiricism include Berkeley, Hume, Locke and Stuart Mill, whose approaches differed from one another. Thus, the concept of "empiricism" was not considered to represent their viewpoints. Later, August Comte, a French philosopher, developed the ideology known as positivism, which endeavoured to bring together empiricism and rationalism, two concepts which are often erroneously used as synonyms, in modern parlance (Hjørland, 2005).

There are two main philosophical standpoints in the discipline of social science. These are positivism and phenomenology, and these have been the subject of extensive discussion (Easterby-Smith et al., 1991). According to Miller and Brewer (2003), the philosophy of phenomenology, first suggested by Edmond Husserl, contends that it is through experience that people are able to discover realities and understand them. As a result, what they know about the world derives from their own experience of it, and is based on their own interpretations. From a phenomenological standpoint, therefore, reality is made by people, and is a social construct, thus, it cannot be external to the researcher (Collis and Hussey, 1997; Zikmund et al., 2013). Consequently, when taking a phenomenological approach, a researcher must concentrate, not on facts and measures, but on the perceptions and ideas which people have derived from their experiences (Easterby-Smith et al., 1991; Gray, 2009).

Positivism, however, works on the premise that there is a reality which is external to the researcher. Objective methodologies are therefore necessary, and it is important to

avoid the influence of people's feelings, sensitivities or perceptions (Easterby-Smith et al., 1991; Collis and Hussey, 1997).

In introducing the positivist philosophy, Comte (1853), argued that reality is both external and objective. In order for knowledge to be real, it must be observable and, thus, founded on genuine facts. To achieve knowledge and justify it, experience, observation and experiment are necessary (Gray, 2009). In terms of research, therefore, a positivist standpoint considers the researcher, and their subject, to be both objective and independent. A hypothesis is made and tested. Results can be measured and generalisations made from them. (Easterby-Smith et al., 1991). According to Johnson and Duberley (2000), the researcher, in a positivist paradigm, is passive, noting those facts on which reality is founded. If this philosophical approach is used in the social science discipline, it becomes feasible, using the causal theory of human behaviour, to predict human behaviour by means of regularities, models and laws (Rosenberg, 2005). This study aimed to explore, the effect of using social media for work purposes on innovation through the process of sharing knowledge and human capital. In addition, the author investigated the impact of perceived supervisor support, and perceived usefulness of SMU experience on SMUWP. A positivist philosophical approach to this research, was considered best suited to answering those research questions which were outlined in Chapter 1. Therefore, this study adopted the positivism philosophy.

The following section therefore examines, in more detail, the investigative model for this research, in other words, its research paradigm, within the context of a positivist philosophical standpoint.

4.2.2 Research Paradigm

Guba and Lincoln (1994) define a paradigm as those beliefs and attitudes which inform the researcher's choice of ontological and epistemological standpoints, and their

selection of an appropriate methodology. Creswell (2009) has highlighted the significance of the research paradigm, for the process of inquiry, regardless of the type of study, because such a paradigm informs and illuminates such aspects of the work as its epistemology, its ontology and its methodology. The epistemology of a study determines the type of knowledge which can be accepted as valid (Hussey and Hussey, 1997). It also clarifies the nature of the connection between the researcher and their subject (Guba and Lincoln, 1994). Ontological perceptions may be subjective or objective, and denote the type of reality which is discoverable, explaining its form and nature (Eriksson and Kovalainen, 2008). When an objective ontological viewpoint is adopted, reality and the world are regarded as both distinctive and independent. In contrast, if the ontology of the study is subjective, it maintains that there is a connection, and a dependence, between humans and their reality (Eriksson and Kovalainen, 2008).

In the field of social sciences, four main philosophical paradigms provide a framework of understanding. Guba and Lincoln (1994) identified these as positivism, post-positivism, critical theory and constructivism.

Positivism and post-positivism are those scientific methods which are generally taken as the traditional research paradigm. Hence, they are normally quantitative rather than qualitative (Creswell, 2009). In contrast, both critical theory and constructivism focus on the understanding and interpretations that the participants have of the situation under examination. As such, these paradigms look less at the relationships between causes and outcomes, than to those between patterns (Howell, 2013). These approaches therefore lead to a qualitative, more than a quantitative, approach (Creswell, 2009).

The approach taken by this study is post-positivist. Thus, as Guba and Lincoln (1994) describe it, the research paradigm has a critical realist standpoint. Its approach is one of modified dualism. Objectivity is retained, but the concept of independence is abandoned.

Positivism, it was asserted, could produce positive knowledge, explaining and predicting cause and effect relationships, which could then be generalised (Howell 2013). However, post-positivism, according to Howell (2013), challenges this claim. Outcomes, in a post-positivist approach, emerge from those past experiences which inform the construction of hypotheses and research questions (Creswell, 2009). It is therefore not possible to divide the researcher from their research (Eriksson and Kovalainen 2008). Johnson and Duberley (2000), use the term neo-positivism to mean post-positivism. They assert that it is vital for a researcher, using this paradigm in the field of business, to take into account participants' perceptions of reality and interpretations of the situation. Thus, this paradigm can be applied to the understanding of how people behave in business, and the attitudes they adopt.

From an ontological perspective, this study has adopted the critical realism viewpoint. It therefore accepts the position that human factors prove a hindrance to a complete understanding of reality. Reality cannot be perfectly comprehended, and any understanding of it will be probabilistic (Guba and Lincoln, 1994; Howell, 2013).

The present research investigated the effect of SMUWP on innovation, by considering the mediating effect of both KS and HC. Furthermore, it considered the significance of perceived supervisor support, and the level of usefulness of SMU experience.

The researcher took the view that this reality was external to themselves. As a result, it was possible to observe it and measure it objectively, through the SMUWP's

operationalization, HC and KS, and the levels of innovation the company showed. Nevertheless, a purely positivist approach could not provide a comprehensive understanding if this reality. The researcher understood that it was affected by the perceptions and viewpoints of employees, as well as their attitude to SMU. Employees' beliefs and their feelings about the company, innovation, HC and KS all had an effect, identifiable using Likert scales. These identifiable effects justify the study taking an approach based on the ontology of critical realism.

The epistemological standpoint of the study was a balanced one. It was not possible to regard the researcher and the subject of the research as completely distinct. The researcher already had an in-depth understanding of the topic, gained through an extensive literature review. Nevertheless, a certain level of objectivity remained possible because quantitative measurements of the variables of the study could be made.

4.2.3   Research Approach

Connecting the research approach of a study to a particular research philosophy has a number of advantages. Firstly, it facilitates the presentation of an appropriate research design, in which data collection methods can be justified, as can the analysis procedures and processes. Secondly, it allows a suitable research strategies and methodology to be applied.

Saunders et al. (2012) identified the deductive and inductive kinds of research approach. According to Sekaran (2016), the deductive process is a means of reaching a rational conclusion by taking known facts and making a logical generalisation from them. Research relationships are therefore justifiable in terms of existing theories and ideas. Theories can then be tested using empirical results (Vanderstoep and Johnston, 2009). Such a theory-testing approach is well-suited to a quantitative research

viewpoint, with matters connected to earlier theories being used to construct the research hypothesis which is to be tested (Bryman and Bell, 2007).

In contrast, in an inductive approach, a conclusion is reached through the observation of particular phenomena (Sekaran, 2016). Lancaster (2005) regards the inductive approach as a reversal of the steps taken in a deductive approach. Inductive research has a greater level of flexibility than deductive, because it does not rely on past theories or hypotheses. Bryman and Bell (2007) have highlighted the connections between the inductive approach and qualitative research, whose methodology is interpretative. Likewise, Saunders et al. (2012) regard the inductive approach as tending towards interpretivism.

A deduction approach was considered most suitable for this study. It had a research hypothesis, which was based on previous theories, derived from established investigations in this discipline, and a solid conceptual framework. It used structural equation modelling, which is an established and suitable statistical tool, to test its hypothesis. This hypothesis could have been either accepted or rejected.

4.3 Research Methodology

Crotty (1998) has defined methodology processes and approaches, which form the foundation for a suitable selection of research methods. There are various methodologies which can be used in any piece of research and it is possible to combine more than one method.

The methodology selected for this research was the survey. There were a number of reasons informing this choice. A survey is, according to Collis and Hussey (2009), a type of positivist methodology. It takes a sample of subjects and researches them in a manner which allows generalisations to be made, and implications suggested, for the target population from which they have been extracted (Gray, 2009). The survey

method is, thus, in keeping with the post-positivist approach of this study. It employs a set of questions which are objective, impersonal and free from any bias (Kumar, 2008).

Furthermore, those causes and effects which lead to the appearance of dependent and independent variables, can be examined under controlled conditions, by means of surveys (Gray, 2009). The present study considered the impact of SMUWP on the firms' innovation, by means of a KS process and HC. In addition, both the PSS and the PUSE on SMUWP were also influenced by employees' perceptions, in Saudi Arabian SMEs.

4.3.1 Research Methods

In human and social science studies, three possible research methods may be applied. These are the qualitative method, the quantitative method and the mixed method (Creswell, 2003).

4.3.1.1 *Qualitative Method*

The qualitative method is naturalistic and, because it is focused on interpretation, it is more about language than about numbers (Miles and Huberman, 1994). Qualitative research reveals individual beliefs, perceptions and attitudes to certain issues or sets of circumstances, and attempts to interpret them. People's personal stories are thus used to seek solutions to the research problem. Qualitative researchers, therefore, focus their investigations in the original context of the phenomena under examination. The opinions of those with greater levels of experience of the issues involved, thus form the basis of the researcher's interpretation (Thomas, 2003). The main focus of the qualitative method is not the use of observation to produce measurements of a phenomenon or event. Rather, it is concerned with reaching an understanding of a problem, in its own specific environment. For this reason, it has particular merit when used as a method for determining a new phenomenon or idea (Malhotra et al., 2012).

4.3.1.2 Quantitative Method

In the quantitative method, mathematical techniques are employed to analyse numerical data. It can thus be considered to be both objective and systematic as a process, and as a means of producing information. Quantitative research is therefore rooted in the positivist paradigm, and endeavours to adhere to the stringent rules of logic, laws, prediction and truth (Burns & Grove, 2003). This means that data must be obtained in a quantitative form, to facilitate formal and precise analysis. A further use of the quantitative method is to identify variables, discovered in previous research, within the discipline. Research relationships can also be investigated. The information thus gained, can be used to test theories or hypotheses, and findings can be produced (Kothari, 2004).

Johnson and Onwuegbuzie (2004) have highlighted numerous benefits for employing quantitative research. Some of these are listed below:

• A quantitative method allows for generalization of research findings, so long as the random sample, from which data has been collected, is large enough to be representative of the target population.

• A quantitative method depends on only a small number of variables. Furthermore it tests the validity and reliability of data by using may different tools. It is therefore highly objective and the results are accurate.

• A quantitative method facilitates the statistical comparison of results between various groups.

• A quantitative approach allows personal bias to be avoided. Researchers remain at a "distance'" from participants, and deal with unfamiliar topics.

It was therefore decided that the quantitative method best suited the research aims of the current investigation. The method is in keeping with the positivist research philosophy, as well as the deductive research approach. Quantitative methods were appropriate to the deductive study design, which involved collecting and analysing numerical data. The relationships between variables of this study could then be tested using these data.

4.4   Research Design

According to Cooper and Schindler (2003), research design is defined as the research plan project to evaluate and acquire answers to the research questions. With the help of the research design, the study boundaries are clarified, which entails laying out the study setting, investigation types to be utilised, analysis unit and other relevant research issues. Correspondingly, Gray (2009) states that the research design defines the study purpose, research questions being addressed, data collection technique, sample selection approaches and data analysis. The following section, provides a qualitative discussion on these issues.

4.4.1   The Purpose of the Research

The various kinds of research can be classified into three categories of; descriptive, exploratory and explanatory research.

4.4.1.1   Descriptive Research

This category of research is used to present the characteristics of a specific event, phenomenon, group or individual. It essentially describes the current state of affairs. According to Salkind (2010) and Kothari (2004), this research employs data collection for specific variables for study focus areas like demographic questions and usage frequency; thus being related to frequency counting. Kothari (2004) further adds that for analyses purposes, such descriptive studies towards data collection utilize correlation and comparative methods.

4.4.1.2   Exploratory Research

This research category focuses on hypothesis development, as contrary to confirming or testing a hypothesis (Kothari, 2004). Similarly, according to Saunders et al. (2009), such exploratory research are aimed at ensuring provision of sufficient subject information and therefore typically are oriented towards identifying a research issue,

which has either little or no preceding research. These researches are primarily focussed at new ideas and insights discovery. Accordingly, Creswell (2009) corroborates that a researches specifically conducts exploratory research in a situation wherein there is limited knowledge of essential variables under investigation. In addition, flexibility of exploratory research is essential to collect, compile and collate diverse research problem aspects (Kothari, 2004). According to Saunders et al. (2009), the following three methods are included in an exploratory research: a) literature search and review; b) expert interviews; c) focus group interviews.

4.4.1.3 Explanatory (causal) Research

This classification of research includes studies oriented towards obtaining answers on the causes underpinning effect of certain variables on other variables. This research focuses describing, explaining and predicting a phenomenon through testing a theory. This theory maybe a set of interconnected and logically structured assumptions, principles, statements, rules, and propositions. The inter-variable relationships' critical effects have been illustrated by several theories. These studies, hypothesise the positive or negative direction and also the causal relationship and strength between the researches' focussed variables. For example, the positive relation between the competitive advantage and the knowledge base of the firms has been mentioned by KBV. In explanatory research, the hypotheses are confirmed, through a systemic variable measurement which provides analytical evidence. According to Saunders et al. (2009) and Kothari (2004), to unearth and identify the actual reasons underpinning a phenomenon, the explanatory research assess beyond the descriptive research and exploratory research findings. Additionally, it brings forward distinctions between the independent and dependent variables (Gray, 2009).

Thus, the research questions and objectives in combination should determine the research purpose and in alignment with the forgone description, the current study can be classified as explanatory research.

4.4.2 Research Strategies

Research strategies vary widely, and help researchers to obtain data which provides answers to research questions and fulfils research objectives. Amongst those which may be employed, are surveys, case studies or experiments. Research strategies enable the researcher to discover data sources and collect data from them. They also help to identify such issues as the limitations of the research, the cost, the timescale required and a suitable location (Saunders et al., 2009).

4.4.2.1 Experiment

Experimental research is a research method which is both empirical and quantitative. By using systematic and objective means in the pursuit of knowledge, it falls within the positivism paradigm (Miller and Salkind, 2003). Experimental research allows the researcher to test a hypothesis. In so doing, either the independent variable is manipulated or the experimental group are placed some specific circumstance or condition (Kothari, 2004). Either cause-and-effects or explanatory variables are thus sought. It is necessary to define and measure these (Saunders et al., 2009).

4.4.2.2 Survey

Surveys are commonly designed to answer "who", "what", "how many" or "how much" type questions (Saunders et al., 2012). This is a strategy which is generally applicable to descriptive and explanatory research. It is therefore generally associated with the deductive approach (Gray, 2009). The relationships between the research variables can be explained by the survey data collected. This is a strategy which depends on statistical analysis for accurate research results to be produced. For the obtaining of quantitative

data, questionnaires or structured interviews are frequently used. (Saunders et al., 2009).

4.4.2.3 Case study

Case studies are concerned with the in-depth study of phenomena, and collect data or observations from social units. These may be an individual, a family, a cultural group, an organisation or an entire community. They are thus commonly used in qualitative research. According to Yin (2003), a case study is an empirical investigation. It works within a real-life context, to study modern-day phenomena, but in situations where the division between context and phenomena are blurred. Case studies also take their evidence from numerous sources.

The numbers of conditions or situations a case study is used to investigate, and the relationships between them are restricted. This facilitates intensive analysis of the particular issue or unit which is the focus of the investigation. Case studies therefore have the potential to foster deep understanding of complex issues (Kothari, 2004).

4.4.2.4 Suitable Research Strategy:

The aim of the present research was to investigate the relationship between variables. As previously noted, a survey is frequently used with "what", "how much" and "how many" type questions, and is a deductive, quantitative approach to data collection. As such, the data thus obtained has the potential to explain relationships variables in a study. Therefore, the research philosophy, the deductive approach and quantitative method of this study were all best served by the survey method.

4.4.3 Questionnaire surveys

A questionnaire is the most common tool employed in social research, and is key to data collection (Lancaster, 2005). A survey will be therefore be conducted to obtain information about social media usage in SMEs and employees' perceptions. Since the

over-arching paradigm informing this study is the positivistic-oriented view, such a survey questionnaire was deemed the most appropriate data collection tool. Moreover, not does conducting a survey incur considerably less expense than running interviews, but it also provides access to target respondents over a much wider geographical area (Collins et al., 2003). There are two main types of questionnaire depending on their manner of administration. These are self-administered and interviewer-administered. The self-administered questionnaire, which is normally filled in by the participants themselves, can be divided into three sub-categories:

1. The internet-mediated questionnaire, conducted via e-mail or on a website;

2. The postal questionnaire, which is sent as hard copy, by post, with a covering letter;

3. Delivery-and-collection questionnaire, which is delivered by hand and collected at a later date.

An interviewer-administered questionnaire may be conducted over the phone, or in person, where the interviewer is face-to-face with the interviewee (sometimes referred to as "interview schedules". In both cases, it is the interviewer who records the responses of participants (Saunders et al., 2009).

The present research employed the self-administered web survey method and e-mail. These were selected, in preference to other methods, due to the connections between the online method and the nature of the research itself, since the focus of this research is the use of social media. Moreover, CustomerSat.com (1999), have indicated that participants are more inclined to respond accurately and fully if they are experienced website users. Ranchhod and Zhou (2001) have also argued that it is people with good technology skills, who regularly use the internet as their means of communication, who are most comfortable using online surveys. This could be seen to raise concerns about

sample limitation. However, such bias is not likely to occur when familiarity with the internet and with websites is a requirement for being part of the target population.

4.4.4   Questionnaire Design

The choice of closed or closed-ended questions, with a proposed set of possible answers, was consistent with this study's positivistic approach (Collis and Hussey, 2009). Bryman and Bell (2011) and Collis and Hussey (2009) have demonstrated that closed questions ensure that the collected data is comparable data. Furthermore, closed questions render the data much easier the code, tabulate and interpret. Responses were measured by mean of a Likert scale.

Madu (2003) explains the Likert scale as a range of options, from low and negative responses to high and positive answers. It is thus a scaling procedure, which gives participants the opportunity to express their attitudes and opinions in such terms. This was the design used for the questionnaire and tool design, in the present study. A set of items, ranging between three and five questions were used to operationalise the concepts (Bhattacherjee, 2012). The theoretical validity of these concepts was guaranteed by basing them firmly on the literature. Every question had a five-point scale to ensure measurability. In order to avoid distorted results being caused by adjustments, standardising scales were set (Field, 2013). A seven-point Likert scale would have proven even more useful for investigating interactions. However, even a five-point Likert scale proved challenging to participants. They found it distracting and time-consuming, particularly as the questions themselves were lengthy. Thus, the five-point Likert calibration was the best option, and was used as a standard throughout this research.

4.4.5   Questionnaire layout

This research used the structured questionnaire. This enabled participants to select the answers which most closely represented their opinions. The four kinds of information, sought in the questionnaire, can be categorised as knowledge, behaviour, attributes and beliefs/opinions/attitudes. Knowledge refers to what a person knows, or their level of understanding of something. Beliefs/attitude/opinions covers participants' perceptions of others, as well as their way of thinking, their feelings, their ideas and the judgements they make. Behavioural information relates to what people do. This may be in the past or the present, or involve future intentions. Attributes is demographic information, so covers such matters as age, educational levels and so on (Zou et al., 1998).

The questionnaire designed for the present study sought a mixture of these kinds of information, and was divided into two main parts. The purpose of the questions, in the first part, was to measure each construct, using measures which either already existed or which could be adapted from other comparable scales. A reflective measurement exists for all constructs. The final part contained questions related to participants' demographic characteristics. These covered such information as age, gender, level of education and experience of using social media.

For each of the theoretical concepts, involved in the research, a question with multiple items and five Likert scales was constructed. The Likert scales ranged from 1 = strongly disagree, to 5= strongly agree. The use of the Likert scale meant that it was not necessary to develop pairs of dichotomous adjectives. A series of statements about each of the study concepts was presented, and the scale allowed participants to express their attitudes, beliefs and perceptions towards the concept, in terms of how highly, or otherwise, they favoured it.

4.5 Research Measures

In terms of the theoretical framework of this research, as developed in Chapter 3, (see **Figure 4-2**), the major constructs of this study are as follows: the perceived supervisor support, perceived usefulness of SMU experience, the use of SMU for work purposes, the process of knowledge sharing, innovation, human capital and demographic factors.

Perceived usefulness of SMU experience and perceived supervisor support, as well as SMUWP are among the independent variables. Included amongst the dependent variables are the innovation and SMUWP. Human capital, and both aspects of knowledge sharing (collection and donation), are mediator variables. The level of respondent agreement, or disagreement, expressed for each of the Likert scale statements, relating to a study concept are given a numerical score. The scores are then totalled to indicate the respondent's attitude.
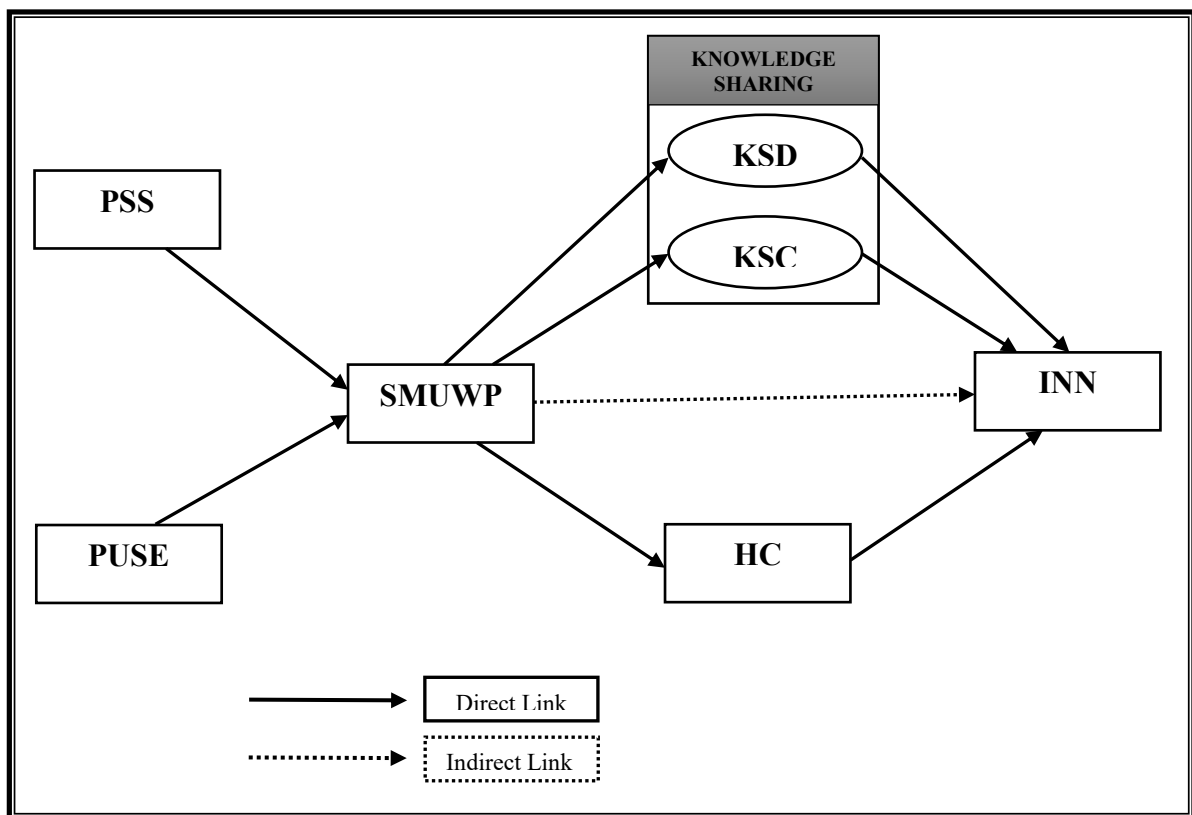
Figure 4-2: Theoretical Framework

Previous literature, and other studies, were consulted to inform the development of the measurement scales. The literature was found to contain the majority of the measurements required for constructs in the conceptual model. Indeed, most of the studies involved in the development of such measures, are of high quality. They have been published in highly respected journals and have been extensively cited, (as illustrated in (**Figure 4-2**). However, some of the measurements required adaptation to ensure that they were appropriate to SMEs employees, and how they perceived social media usage.

4.5.1   Perceived supervisor support (PSS)

This variable is considered to be an independent variable in this study, as shown in **Figure 4-2**. The operational definition of such a construct, which has been adopted by this study in chapter 3 is "the degree to which an employee perceives that the supervisor supports his or her social media usage for work purposes". Such a definition can be reflected by the 4 items (see **Table 4-1**), adapted from Avlonitis et al. (2005), based on Schillewaert et al. (2000). This was modified to ensure its suitability for use regarding social media, and to make it compatible with the objectives of this research. Such items have been tested by both aforementioned studies, and showed acceptable validity and reliability rates. In addition, this study has tested such items, within two stages of the pilot study (see **Table 4-8**), and during the final test in chapter 5. At both stages, the results were satisfactory, in terms of validity and reliability.

Table 4-1: Items for "Perceived supervisor support" variable

Items	Sources
Our supervisor continuously encourages us to use social media for work purposes.	Avlonitis et al. (2005).
Our supervisor clearly advocates the use of social media for work purposes.	
Our supervisor continuously refers to the importance of using social media to enhance my work activities.	*Based on* Schillewaert et al. (2000).
Our supervisor believes that there are true merits from using social media.	

4.5.2 Perceived usefulness of social media usage experience (PUSE)

This construct is considered to be an independent variable. It is defined in this study, in chapter two, as: "the degree to which an employee perceived value about his or her social media usage for learning and work purposes, which resulted from prior usage". Such a variable can measured by 5 items (see **Table 4-2**). These have been adapted from the study by Ma and Yuen (2011). These items were initially developed by Ko et al. (2005) and then adapted by Ma and Yuen (2011). Both studies showed acceptable rates of reliability and validity. Consequently, in this study reliability and validity rates were satisfactory, through the pilot stage, and in the final result too.

Table 4-2: Items for "Perceived usefulness of SMU experience" variable

Items	Sources
The advice I receive from other people using social media has increased my understanding.	Ko et al. (2005)
The advice I receive from other people in using social media has increased my knowledge.	
The advice I receive from other people in using social media allows me to complete similar tasks more efficiently.	
The advice I receive from other people using social media allows me to improve the quality of similar work.	Ma & Yuen, (2011)
The advice I receive from other people using social media allows me to conduct similar tasks with greater independence.	

4.5.3 Social media usage for work purposes (SMUWP)

This variable is the vital construct in this study. Such a construct as this can be seen in **Figure 4-2**, and is considered to be a dependent variable for the aforementioned constructs (PSS and PUSE). It is independent from the rest of variables, which affect innovation, through the mediation of the KS process and HC. In this study, the conducted operational definition of such concept is, " The degree to which employees are using Social Media for work purposes, whether inside or outside their organisation, in order to enhance their knowledge, skills, self-learning, problem-solving capacity,

and 'social and human capital". Indeed, this variable has been measured using 5 items, which can be regarded as a reflection of such a definition. The first 3 items, as shown in Table 4-3, have been adapted from Leftheriotis and Giannakos (2014). The validity and reliability of such items were acceptable in this study (See **Table 4-8**). This was consistent with several previous studies, which have also produced satisfactory results, in terms of validity and reliability. Regarding the other aspects, this study has developed the last two items, as can be seen in Table 4-3 to be compatible with the aim of this research, to improve accuracy, and to cover such concepts. The development of these was inspired by previous studies (e.g. Turban et al., 2016; Lytras and Kurilovas, 2014; Panahi et al., 2012). Furthermore, such developed items have also achieved convincing rates in terms of validity and reliability, as demonstrated in Table 4-8. Such a combination of items can provide a comprehensive measurement for the concept of social media usage for work purposes, from wide angle.

Table 4-3: Items for "SMU for work purposes" variable

Items	Sources
I frequently use social media for work purposes.	Leftheriotis & Giannakos (2014). Based on Kankanhalli et al. (2005)
I regularly use social media to maintain and strengthen communication with colleagues in my work.	
I often use social media to obtain work-related information and knowledge.	
I often use social media to solve problems related to work.	Developed by this study.
I usually use social media to improve my work experiences and skills.	

4.5.4 Knowledge sharing process

Based on the review of knowledge management literature, undertaken in this study, the knowledge sharing process has two dimensions: donating and collecting. Both of these are crucial for increasing levels of innovation in the organisation. Knowledge-sharing means, in this research, the exchange of knowledge, skills and experiences regarding

managerial and technical issues among employees, through various methods. These include donating and collecting knowledge. This definition is based upon previous studies. Knowledge donating defines the motivation of employees to share their own intellectual capital, with others employees, in the workplace (giving). Knowledge collecting, in contrast, refers to asking the others for advices, in order to obtain intellectual capital (receiving). The employees were asked to assess their perceptions about the statements regarding knowledge-sharing practice, on a five-point scale, ranging from "strongly disagree" to "strongly agree". The original instrument was developed by Hooff and Weenen (2004), where the items have been proven to be valid and reliable. The coefficient of Cronbach's alpha, in his work, estimates that for the donating and collecting of knowledge, items were 0.83 and 0.90, respectively. This scale was later replicated by other studies, such as (Lin, 2007; Liao et al., 2007; Behery, 2008; Van den Hoof and Huysman, 2009; Kamasak and Bulutlar, 2010; Tohidinia and Mosakhani, 2010; Alhady et al., 2011; Cheng, 2012; Abdallah et al., 2012; Kim et al., 2013; Tong et al., 2013). In the current study, such items have been adopted. The results of Cronbach's alpha coefficient, in the pilot test, were (0.843) for KSD and (0.868) for KSC. Such variables are considered to be mediators in this study, **Table 4-4** illustrates the proposed items.

Table 4-4: Items for "KS process" variable

Items	Sources
Knowledge sharing – Donation (KSD)	
Knowledge-sharing amongst colleagues is considered normal in my organisation.	Hooff and Weenen (2004)
When I have learned something new, I tell my colleagues about it.	
When my colleagues have learned something new, they tell me about it.	
I share the information I have with colleagues in my organisation.	
Knowledge sharing – Collection (KSC)	

Colleagues in my organisation share knowledge with me when I ask them to.	
I share my skills with colleagues when they ask for it.	
Colleagues in my organisation share their skills with me when I ask them to.	

4.5.5 Human capital (HC)

In this study, human capital is considered to be a mediator too (**Figure 4-2**). HC can be defined as "employees' competencies, including knowledge, skills, talents, experiences, qualifications and education". In addition, HC is embedded in the employees' minds. Such a variable has been measured by 4 items, which have been adopted from Wu et al. (2008) as it showed in **Table 4-5**. Such items have revealed satisfactory validity and reliability rates in several previous studies (e.g. Wu et al., 2008; Santos-Rodrigues et al., 2013; Elsetouhi, 2015). Furthermore, in the current study, the reliability and validity requirements for such items were satisfied, as were the results of Cronbach's alpha coefficient in the pilot test (0.843).

Table 4-5: Items for "Human Capital" variable

Items	Sources
The knowledge and competence of our employees is of a high level.	Wu et al. (2008)
The average educational level of workforce is high.	
The firm supports our employees by constantly investing their skills and education.	
Employees would share their creativity with their colleagues.	

4.5.6 Innovation (INN)

Innovation is considered to be a dependent variable in the current research. It was measured by 3 items, adopted from García-Morales et al. (2008) (See **Table 4-6**). The result of Cronbach's alpha coefficient, in the pilot test for such items, was 0.828, which reflects a satisfactory rate of validity and reliability as it was above 0.7. This is not a surprising result, as it is consistent with several previous studies, which have revealed

high rates of Cronbach's alpha (e.g. Hsiao et al., 2014; Noruzy et al., 2013; BolíVar-Ramos et al., 2012).

Table 4-6: Items for "innovation" variable

Items	Sources
The rate of introduction of new products or services in the organisation has grown rapidly in the last five years.	García-Morales et al. (2008)
The rate of introduction of new production methods or services rendered in the organisation has grown rapidly in the last five years.	
In comparison to its competitors, my organisation has become much more innovative in the last five years.	

4.6   Survey Population and sample size

The majority of previous empirical studies on social media, have used samples ranging from 300 to 1,200 (e,g. Omar et al. 2016; Qi and Chau 2016; Charoensukmongkol, 2014; Rauniar et al. 2014). In this thesis, the context of the study was on SMEs in Saudi Arabia. The size limit selected, was firms with fewer than 200 employees. Indeed, so far there is no agreed definition of SMEs, in the current literature of business research. However, almost all studies agree that the definition of SMEs mostly depends on the maximum total number of employees in a firm. For example, the European definition of SMEs is as follows: "The category of small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons" (Lasagni, A, 2012).

With regards to the maximum number of employees, this usually depends on the categorisation of each country, based on its trade policy classification. As result, Saudi Arabian considers that SMEs are any organisation with fewer than 200; medium sized concerns employ 50-199 employees, while small enterprises have fewer than 50 employees (Saudi Arabia Monetary Agency, 2010). Therefore, based on the research aim, this study adopted the Saudi Arabian definition of SMEs, as the context of this research, and for conducting the survey. Therefore, the targeted population was based

on the employees of SMEs in Saudi Arabia. In particular, the focus was on any subordinate, whether executives (managers) or normal employees, because the focus of this study is the social media usage for work purposes, and the factors that affect such usages. It also examines its effect on innovation, through knowledge-sharing and human capital.

Indeed, the sample size was determined according to the "Sample Size Calculator" in the Survey Monkey website (see appendix **E**) which is widely accepted by social science researchers, since it takes into account the degree of required confidence, the sample error, ratio of population characteristics available in the sample (50% in social sciences) and population size. According to the report of the Jeddah Chamber (2015), the estimated total number of employees, in SMEs, in Saudi Arabia is 1624000 (population size). Therefore, based on the (Survey Monkey website), the sample size was determined according to the following equation:

$$\frac{\frac{z^2 \times p(1-p)}{e^2}}{1+(\frac{z^2 \times p(1-p)}{e^2 N})}$$

Where:

N   Population Size

e   Margin of Error

z   Confidence Level

p   Percentage Value

As a result of these findings, the minimum representative sample size is 385 fully completed questionnaires. The distribution was therefore around 1280 questionnaires

with an average response about 30% was expected as it recommended by Saunders et al. (2007).

In addition, Bartlett, et al. (2010) and Barclay, *et al.* (1995) suggested that, when determining the sample size for partial least squares PLS estimation, 10 cases per predictor should be the cut off sample size. In our model, the most complex regression involves the number of paths to the construct, which are eight. Therefore, according to this rule, 80 responses would be necessary, as the minimum sample size for our study. The targeted research sample size is very good, and a practically acceptable size for the use of PLS. The researcher applied the partial least squares (PLS-SEM). The WarpPLS 5.0 programme was been adopted to validate the measures and test the hypotheses of this thesis.

4.6.1 Sampling techniques

A sampling frame is a full list of everything from which the sample has been derived (Hair et al. 2007). When a probability sample is involved, the sampling frame, according to Saunders et al. (2009), should comprise a comprehensive list of instances within the study population. Should there be no such sampling frame, one will be devised by the researchers. Kotharia, (2004), stresses that such a list should represent the study population as closely as it can. Furthermore, the accuracy, inclusivity and reliability of such lists are vital, as well as their appropriateness to the research in hand.

Saudi Arabia wishes to foster economic enterprise and development. The Ministry of Labour and Social Development, therefore, provides research and development facilities, to assist researchers in this area. One important aspect of these provisions, is a database, containing detailed information about Saudi Arabian business enterprises, including addresses and contact details of businesses, the annual turnover of each venture, and staff numbers.

The database proved useful to this research project, because it made much easier the task of accessing the required sector. This enabled a random sample to be selected from the target area, using a type of probability sampling technique, known as systematic sampling. There was a random starting point for the selection of the sample members from the overall target population. In addition, the study used a fixed periodic interval, known as a sampling interval, which is the population size divided by the required size of the sample. This sampling method is not only simpler than random sampling, but is also commonly used when a stated number of archives are to be extracted from a computer file (Bryman and Bell, 2015). If random sampling is undertaken when the population is sizeable, there may be considerable problems identifying every member thereof. As a result, there can be a risk of bias with regard to the pool of subjects, from which the sample is to be taken (Cochran, 2007).

4.6.2 Data Collection Technique

An online questionnaire was used to collect data, and this was self-administered by participants. The method was chosen because of its irrefutable advantages, despite its relative newness as a data collecting tool. Firstly, the quality of data collected via web-based surveys has been shown to be high (Goslinget al., 2004; Manfreda & Vehovar, 2008). Secondly, the method is an efficient one, and cheaper to administer than other methods (Chisnall, 2007; McDonald & Adam, 2003). Thirdly, it allows for a rapid response from participants (Griffis et al, 2003; Sheehan & McMillan, 1999). It is not only more convenient for the researcher, but also for the participants (Stanton, 1998; Taylor, 2000). Another advantage is that, respondents who are regular internet users tend to be more engaged by web-based surveys than by traditional ones, because they see them as more exciting and more relevant (Evans & Mathur, 2005). This is important in the present research, since all the respondents are experienced social media users.

Participants were sent an email setting out the goals of the study. This included an estimate of how long completion of the survey was likely to take, and an informed consent form. Connection to the internet survey was made simple by using a banner with a hyperlink. In accordance with the recommendation given by Manfreda and Vehovar (2008, p. 279), respondents were enabled to orientate themselves within the questionnaire, by means of a graphic progress indicator. Importantly, this showed them how near they were to finishing the process.

4.7 Translating the Questionnaire

The translation of a questionnaire into another language can prove problematic. It is essential that respondents have the same understanding of the questions, regardless of the language which is used. This may prove challenging to achieve, since concepts in one language may not be easily translatable into another (Saunders et al., 2012). Back-translation of questionnaires is therefore common practice amongst international researchers, as a means of ensuring that the translations are suitable. The process requires two different translators. Having translated the questionnaire into one language, it is then retranslated back to its original, by a second translator (Zikmund et al., 2010).

The back-translation method was used, in this study, because it was necessary to translate the questionnaire from English into Arabic, which is the official, and main, language of Saudi Arabia. Initially, the questionnaire was sent to Saudi Arabia for translation from English into Arabic. The Arabic version was then returned to the UK for re-translation into English, by a native speaker. Both the English and the Arabic versions of the questionnaire were then sent to the Faculty of Management Studies at King Saud University, where they were examined, and commented upon, by three professors, who made recommendations. The researcher in this study is a native speaker

of Arabic, but also speaks English fluently. In a final step, this researcher then compared the two versions, and made appropriate amendments.

4.8   Research Ethics

Any research study is likely to raise significant ethical issues, and it is essential that the researcher pays heed to these, as a way of affording protection not only to the subjects of the research, but also to the researcher themselves (Myers, 2013).

Various definitions of research ethics have been provided by commentators, on this important issue. Kalof et al. (2008), regards research ethics as outlining what may or may not be done during the course of research. Saunders et al. (2012) focused their definition on the rights of those individuals or groups who were likely to be affected by the study, as well as those who were its direct subjects. Thus, the researcher's behaviour must be such that it respects the rights of both groups. McNabb (2013) sees research ethics as the taking into account of moral values and ethics throughout the entirety of the research project, identifying four essential principles which must be applied at all times: truthfulness, thoroughness, objectivity and relevance. Truthfulness means that no lies, deception or fraud are to be used by the researcher, while thoroughness precludes the taking of shortcuts. Objectivity is of particular significance to positivistic studies, and highlights the need for researchers to avoid bias. The concept of relevance stresses the importance of ensuring that the research is pertinent to the existing literature, and that it is focused and purposeful in its approach.

The researcher in the present study has endeavoured to adhere strictly to all these principles. The purposeful nature of the research has been ensured, by conducting an extensive literature review, over a period of eight months. During this time, numerous books and journal articles, on the topic of social media systems and knowledge

management, have been thoroughly consulted in order to develop research questions which genuinely address gaps in the literature.

Furthermore, ethical principles of confidentiality have been highlighted by McNabb (2013) and Kalof et al. (2008), who stress the necessity of safeguarding the privacy and anonymity of all participants. This is of particular importance when research findings are published, or communicated to others, in any form. The researcher, in this project, was able to guarantee that it would be impossible to identify any participants when the results were published, and that their anonymity and privacy would be fully respected. Sample descriptions did not discuss the identity of the participants; rather, they concentrated on the characteristics of the sample, in accordance with the advice given by McNabb (2013). In addition, respect for confidentiality of all participants was further ensured by the removal, from all the research documentation, of any identifying details. When participants were invited to join the research, the email and covering letter they received, contained assurances that all such ethical issues had been taken into account, by the researcher, and that confidentiality was guaranteed.

In addition, the information provided to participants, in this research, took into consideration the principle of "informed consent", as elucidated by Kalof et al (2008), as well as Myers (2013). Such a principle stresses the necessity for participants to have clear explanations regarding what is expected of them, and an understanding that their participation in the survey is voluntary. Furthermore, they should be made aware of the risks, as well as the benefits, of taking part. All of these requirements were met by the researcher, at each stage of the process, through the email invitations and the questionnaires themselves. These clarified the purpose, the risks and the benefits of taking part, and stressed the voluntary nature of the process. McNabb (2013) has highlighted the importance of openness regarding the level of credibility the study can

be afforded. The researcher, therefore, outlined the restrictions and limitations of the research.

Taken as a whole, the purpose of ethical considerations is to avoid causing harm (Saunders et al. 2012). Great care was therefore taken, in this research project, to ensure that all ethical requirements had not only been met, but also clearly communicated to participants, as demonstrated by the copy of the letter in Appendix C, which details all such matters in a clear and comprehensible manner. Formal ethical approval for the research was also given, and the application letter seeking this, may be found in Appendix B.

4.9 The Use of PLS –SEM

Simultaneous testing and explanation of the connections between one or a number of dependent and independent variables, may be conducted, by means of a group of varied statistical models, known as structural equation modelling (SEM) (Byrne, 2010). SEM is particularly suitable for examining the causal relationships which exist between varied constructs, which contain items with multiple measurements. SEM's statistical processes are sufficiently robust to tackle complex models.

Partial Least Squares Structural Equation Modelling (PLS-SEM) is non-linear and regression based. It uses WarpPLS 5.0 (Kock, 2013) software. "Rules of Thumb for Selecting PLS-SEM" have been provided to help scholars justify their choice of this method.

PLS is a suitable choice when research needs to examine constructs and variables in terms of their cause and effect interactions (Hult et al., 2009; Hair et al., 2011). It is also useful when the models, which need to be estimated, contain complex multivariable relationships. This includes variables which are latent, as well as those

which can be observed. In addition, PLS is also applicable when investigating a set of causal theoretical relationships, which connect latent and potentially complex ideas, for which observable indicators are often used as measurements (Vinzi et al., 2010).

The PLS-SEM technique has been gaining in popularity within of Business Studies. It has been used in such disciplines as Strategic Management, Organisational Behaviour and Information Systems. As early as 2008, in excess of 30 articles, in peer-reviewed journals, in this field, had discussed research which had made use of this technique (Henseler et al., 2009).

A further advantage of PLS is that it does not require sample sizes to be large, particularly in comparison with covariance based techniques. Reliable results, with high levels of statistical significance can be produced, using PLS, even when comparatively small samples are used in the assessment of research models. Many researchers, over a number of years, are in agreement on this point (e.g., Nijssen and Douglas, 2008; Henseler et al., 2009; Hair et al., 2014). Reinartz et al. (2009) reinforced these opinions when they indicated that, with as few as 100 observation, PLS gave a greater level of statistical power than alternative techniques. Thus, due to this higher statistical power, when a particular relationship is significant within a population, PLS is well suited to investigate its importance (Hair et al., 2014). Furthermore, a number of researchers, including Tenenhaus et al. (2005:202), have indicated that PLS allows there to be a greater number of variables than there are observations.

Neither does PLS require normality of distribution. This advantage has been noted by several researchers (e.g. Julien and Ramangalahy, 2003; Reinartz et al., 2009; Hair et al., 2012; Schmiedel et al., 2014). It is even possible for PLS to give accurate estimates when distributions are extremely skewed (Hair et al., 2012). It is also recommended,

by Peng and Lai (2012), in their PLS guidance information, that the use of PLS-SEM should be considered in research there is violation of data distribution assumptions.

The suitability of PLS, in the context of particular research focus criteria, has been elucidated. (Hair et al. 2014) have shown PLS' relevance when the aim of a research project involves the explanation of a target construct, while Henseler et al. (2009) have highlighted its usefulness when the aim of the study is explanatory.

According to Hair et al. (2011), PLS-SEM focuses on the maximization of explained variance of those dependent constructs which remain latent. It was also demonstrated by Hair et al. (2011) that testing concepts and theory are amongst the major reasons for utilizing SEM, in research, in the field of business. It has been further recognised that PLS can be used to produce estimate models, which combine formative and reflective indicators (Henseler et al., 2009; Peng and Lai, 2012). Furthermore, even where the models are complex, and have many constructs and indicators, the strength of the results remains unaffected (Henseler et al., 2009; Peng and Lai, 2012; Hair et al., 2014).

The current study aims to explain the variances in firms' innovation in terms of the SMUWP, as well as human capital and knowledge sharing processes. The target population was employees and managers within SMEs. The study sample used for the research was adequate, and the data showed a non-normal distribution pattern.

Due to the type of topic being researched, numerous constructs were involved. Both reflective and formative variables were included amongst these constructs. Given the foregoing discussion of the applications of PLS-SEM, and the nature of this study, PLS-SEM seems to be the most useful statistical tool to estimate the conceptual model which has been proposed.

There are a number of SEM-PLS software programmes, which are available, for example Smart PLS, PLS Graph and WarpPLS. For the current investigation, the researcher opted to use the WarpPLS 5.0. The programme is MATLAB based, and carries out non-linear regression (Brewster, 2011; Kock, 2011). The Smart and Graph PLS programmes only run linear regressions. However, the WarpPLS conducts a warping at the path coefficient level, by utilising a path analysis technique, which is both robust and distinctive. Brewster (2011), in a comparative investigation, demonstrated that, for researching business and management matters, non-linear regression programmes are more effective than linear ones at capturing the reality. This is due to the lack of straight-line correlations between causes and effect, where management phenomena are concerned. Thus, utilising linear regression will not necessarily enable the researcher to identify relationships. Non-linear regression is therefore more likely to prove successful.

4.10 Pilot Testing

A pilot study, may be regarded as practice run, conducted prior to the main survey (Kothari, 2004). According to the definition given by Zikmund et al. (2012), it is a small-scale study, in which data is collected from a small group of participants, whose characteristics are representative of the participants of the main research. This allows the researcher to test how clear the questions are, and to make appropriate adjustments to the research tools, should these be required (Oppenheim, 2000; Kalof et al., 2008). The validity of the tools employed, to measure variables, may also be established by testing the questionnaire in this way. Thus, when the questionnaire is given to the main study group, it is possible to be confident that there is no variability (Creswell, 2009).

4.11 Content Validity

Two phases were used to determine the survey's face validity. Firstly, the questionnaire was sent to five lecturers, senior lectures or professors, in a variety of specialisms, including human resource management, information technology and knowledge management, the latter group included the researcher's own supervisors. These academics were from Plymouth University and the management department at King Saud's University. The questionnaire was, therefore, either emailed or hand delivered. Two of the recipients were also managers of SMEs. Furthermore, the document was also examined by five PhD students, whose specialism was business management. At the bottom of each page of the questionnaire, there was a request for feedback on five issues. The first issue was that of the clarity and accuracy of the questions, to ensure that there were no spelling or grammatical errors. Secondly, the researcher wished to ensure that all questions conveyed their intended meaning. Thirdly, recipients were asked to check that the covering letter was clear, accurate and to the point. Fourthly, the researcher wished to ascertain that the questionnaire was not exhausting. A fifth section allowed for any other comments.

The feedback was collected, organised and examined, to ensure that the questions were clear, valid and suitable for the participants. This feedback indicated that the questionnaire was too long and onerous. Some repetition was discovered, and certain questions required greater precision. In addition, it was thought that the covering letter was too lengthy and that some of the information it gave was unnecessary.

The questionnaire was revised, and the new version circulated to just a few participants, chosen from the target population. This was in line with the methods used by earlier studies in the fields of innovation, human capital, knowledge-sharing and social media. Such studies, described in the literature, have carried out pre-tests of their

questionnaires, using between 10-30 employees. In the case of Kim and Lee (2006) this involved 30 workers from the private and public sectors. In contrast, Huang et al. (2011) tested their questionnaire on 19 managers from various organisations, while Holste and Fields (2009), used 15 participants, in their pilot. Based on this information, from earlier research, it was decided to pilot this study's questionnaire, with 15 respondents from Saudi Arabian SMEs.

4.12 Construct Validity and Reliability

Reliability has been defined by Bryman (2012: 169) as the "consistency of a measure of a concept". It is, therefore, concerned with how stable the measure is over a period of time, which forms its external reliability. A second concern is internal consistency with other measures in the same questionnaire (internal reliability). Questions of validity, meanwhile, focus on whether or not the measure provides an accurate reflection of the concept to be measured (Cooper and Schindler, 2003; Collis and Hussey, 2009). The researcher has, at their disposal, a variety of statistical techniques for ascertaining both the reliability and validity of the measures employed in the research. The analysis chapter will describe, in detail, how such techniques were used for measurement model assessment. To ensure the validity of the measures and constructs, up to this point, the researcher has made use of proven instruments, which have been used previously in similar research, and published in prestigious journals. However, at this stage of the research process, the author ensured the validity of the measures and constructs by relying on instruments that had already been used in the same context. Bryman (2003: 53), indeed, supports the use of measures, which already have established levels of validity and reliability.

It is therefore the case that the majority of indicators in this research, have been used previously. Details of earlier studies, in which they have been tested, have been

published in the British Journal of Management, MIS quarterly, The Journal of Marketing and The Computers in Human Behaviour. **Table 4-7** shows the resources from which the relevant measurements, for this study, were gathered, along with their

Source	Journal	Grade
Kankanhalli, et al. (2005).	MIS quarterly	4
Ko et al. (2005).	MIS quarterly	4
García-Morales et al. (2008).	British journal of management	4
Schillewaert et al. (2000).	Journal of Marketing	4
Gold et al. (2001).	Journal of Management Information Systems	4
Kim and Lee (2006)	Public Administration Review USA	4
Daft (1978)	Academy of Management Journal	4
Nahapiet and Ghoshal (1998)	Academy of Management Review	4
Avlonitis and Panagopoulos (2005).	Industrial Marketing Management	3
Wu et al. (2008).	R and D Management	3
Leftheriotis and Giannakos (2014).	Computers in Human Behaviour	3
Ellison et al. (2007).	Journal of Computer Mediated Communication	3
Chow and Chan (2008)	Information and Management	3
Skerlavaja et al. (2010)	Expert Systems with Applications	3
van den Hooff and Huysman (2009)	Information and Management	3
Hooff and Ridder (2004)	Journal of Knowledge Management	2*
Hooff et al. (2003)	European Management Journal	2*
Hooff and Weenen (2004)	Knowledge and Process Management	1*

grade, according to the Academic Journal Quality Guide, which was published by the Association of Business Schools (ABS, 2015). The instruments used for each variable are thus identified.

Table 4-7: The Source Used in This Study

*N.R: extensively cited article

Construct reliability must also be taken into consideration. It is at the pilot study stage of the process that the researcher can ascertain whether the items for a specific construct are all consistently measuring the same attribute. This indicates to what extent they correlate with one another. Cronbach's alpha coefficient is the tool most frequently used to assess reliability. This method has a values scale, ranging from 0 to 1. Enhanced

reliability is shown by the higher numbers, with 0.7 being generally known to indicate acceptable reliability (Pallant, 2007). According to Field (2009), Cronbach's alpha is the most important coefficient used to ascertain the reliability of a construct. Field (2009) gives the same figure for acceptable reliability. However, both Field (2009) and Pallant (2007) agree that a Cronbach's alpha score below 0.7 requires that the Corrected Item-Total Correlation values, as indicated in the Item-Total Statistics, should also be examined, and would, preferably, be greater than 0.3. The following table (See **Table 4-8**) shows each of the study variables, indicating both their Cronbach's alpha and their Corrected Item-Total Correlation values.

Table 4-8: Cronbach's Alpha for SMEs' Data

Construct	Number of Items	Cronbach's Alpha (α)
PSS	4	0.779
PUSE	5	0.945
SMUWP	5	0.872
KSD	4	0.843
KSC	3	0.868
HC	4	0.921
INN	3	0.828
Note: PSS= Perceived Supervisor Support; PUSE= Perceived Usefulness of SMU experience; SMUWP= Social Media Usage for Work Purposes; KSD= Knowledge Sharing- Donation; KSC= Knowledge Sharing- Collection; HC= Human Capital; INN= Innovation.		

Table 4-8 shows the results from the tests, conducted on the study's variables, for construct reliability. Thus, it can be seen that the correlations between the items, measuring each construct are, without exception, sufficient.

The scores for variable reliability all exceeded 0.7. They ranges from 0.779 to as high as 0.921. Such high alphas demonstrate the reliability of the variables, even though most of these were taken from earlier research.

4.13 Response Rate

Eventually, a total of 1280 questionnaires were sent, but only 563 replies were received, making a response rate of 44%. However, 57 responses were discarded because they had missing data. Therefore, there was total of 506 usable questionnaires. Although a 44% response rate may be considered as relatively reasonable, it is still within the 30-50% average return rates (Saunders et al., 2007). Saunders et al. (2007) maintained that the assumption of a reasonable response ratio for the questionnaires, delivered and collected by hand, is between 30-50%. Furthermore, compared to other structural equation model tools, it has been demonstrated that PLS-SEM can provide robust results at limited sample sizes (Henseler et al., 2009; Reinartz et al., 2009). This view is supported by various researchers (e.g., Hair et al., 2011; 2014a; Peng and Lai, 2012). Hair et al. (2014a) confirmed that a researcher can attain statistical power through determining the appropriateness of the sample size. This argument is supported by Hair et al. (2014b), who recognise that the PLS-SEM provide higher statistical power than other statistical techniques.

4.14 Conclusion

This chapter has demonstrated the way in which quantitative analysis has been used, both to test the research hypothesis, and to answer the research questions. Measurement scales were identified for every construct used. These were based on scales which had already been tested in earlier, well-recognised studies. Data was collected from participants in SMEs, in Saudi Arabia. Subjects were chosen using convenient sampling methods. This chapter has also presented the statistical techniques which have been used in the research.

5   CHAPTER FIVE: DATA ANALYSIS AND FINDINGS

5.1   Introduction

The aim of this chapter is to present and examine the results emerging from the quantitative analysis of Saudi Arabian SMEs' samples. Therefore, this chapter has divided into three main sub-sections. Firstly, section (5.2) which includes: a preliminary descriptive statistics of the samples, analysing sample size, data distribution, missing values and outliers, and common method bias. Secondly, by using PLS-SEM (WarpPLS-SEM 5.0), both measurement and structural model will be presented in section (5.3). The measurement model reviews how well the variables involved and measured in this study, on the other hand, the structural model assesses the causal relationships among these factors. Additionally, the measurement model is founded on the assessment of the reliabilities and validities of the constructs, the structural model in contrast, examines the Path coefficients, P values, R squares, Q squares and effect sizes in order to support or reject the relationship which hypothesised in chapter 3. Thirdly, an examination of direct and indirect effects (Mediation Test) will be given in section (5.4). Lastly, a conclusion which is summarising the main results of the investigations. The obtained results in this chapter are based on the data collected from employees working in SMEs in Saudi Arabia in different sectors and activities. The sample size of employees was 506.

5.2   Descriptive Statistics

The completion of descriptive analysis (descriptive statistics) is considered valuable prior to beginning any analysis as this helps to explain the simpler, foundational aspects of the data in the research, which subsequently aids in providing an overview of the sample and its respective measures. In this regard, a descriptive analysis may be

recognised as facilitating the researcher in explaining the elements underpinning the sample under investigation (Zikmund *et al.*, 2010). Therefore, in this section, sample characteristics, sample size, non-response bias, missing data and outliers, and common method bias have been assessed.

5.2.1   Sample Characteristics'

This section describes the demographic characteristics of the participants from Saudi Arabian SMEs. In the following sub-sections reports the characteristics in further detail.

5.2.1.1   Employees' Gender

Regarding the gender of the participants, as it can be seen from ***Table 5-1*** it was unsurprising to discover that the majority of the participants surveyed were male (79.4 per cent) while only (20.6 per cent) of the participants were female. This is due to several considerations such as cultural and religious factors in Saudi Arabia which women are restricted from working in certain fields like working in hazardous jobs or industries. Moreover, females are required to work away from males, such as through the use of different or separated offices, and similarly need to be provided with and must use separate facilities. Furthermore, there are a number of specific criteria and regulations pertaining to females working in particular sectors which have provided by organisations, as have been outlined by the Ministry of Labour (Baki, 2004; Ministry of Labour report, 2011). Therefore, such restrictions are considered as a challenges toward SMEs more than large enterprises due to several considerations for these enterprises such as (size, capital...etc.) (Al Saleh, 2012).

Table 5-1: Employees' Gender

Group	Count	Percentage
Male	402	79.4
Female	104	20.6

5.2.1.2 Employees' Age

The age of the respondents involved in this survey ranged from 20 years of age to over 50. As can be seen from *Table 5-2*, the largest group of participants were from 30 to 39 years old; they constituted about 39.7% of the total sample. In addition, 34.2 % were from 40 to 49 years old, and 23.5% were from 20 to less than 30 years old, whereas only 2.6% of the respondents were over 50.

Table 5-2: Employees' Age (years)

Group	Count	Percentage
20 - 29	119	23.5
30 - 39	201	39.7
40 - 49	173	34.2
+50	13	2.6

5.2.1.3 Employees' Educational Qualifications

The next *Table 5-3* illustrates the employees' educational qualifications of SMEs respondents. It can be seen that the proportion of respondents with a high school were (48.6%), while a diploma/bachelor's degree (31.8%), a master/doctorate were (16.6%), and of respondents with other qualifications was the least represented (3%). Thus, the majority of the respondents held a high school's qualification.

Table 5-3: Employees' Education level

Group	Count	Percentage
High School	246	48.6
Diploma/ Bachelor	161	31.8
Master/ Doctorate	84	16.6
Other	15	3.0

5.2.1.4 Organisation Sector

Table 5-4 explains the type of organisation sector either public or private in regard to the SMEs. It can be seen that the vast majority of respondents were in the private sector with (88.5%), while the public sector only (11.5%). This is because the majority of SMEs in Saudi Arabia are private sector while the public sector are considered as a minority comparing with the proportion of public sector in the large enterprises (Al Saleh, 2012).

Table 5-4: Organisation sector

Group	Count	Percentage
public	58	11.5
private	448	88.5

5.2.1.5 Number of Employees

The next **Table 5-5** illustrates the range of employees' number in the enterprise which can determine the size of each firm whether small or medium based on this range. This is according to the definition of Saudi Arabian SMEs in (chapter 2) which classified the range of (1-49 employee) as small enterprise that represented (31%), while medium enterprises classified as (50-199 employee) with (68.9%) of total proportion.

Table 5-5: Number of employees in the organisation

Group	Count	Percentage
1 - 49	157	31.0
50 - 99	281	55.5
100 - 199	68	13.4

5.2.1.6 Type of Organisation Activity

Table 5-6 shows the classification of organizations' activity types. It can be seen that the majority held by the commercial enterprises with (52.2%). After that, Services activities were (20.6%) and (15.4%) for the construction activity while the least which held by industrials activities with (4.2%). Finally, (7.7%) with other different activities. Services, industrials, construction and commercial are considered as the most famous classifications in Saudi Arabia especially in field of SMEs based on the report of Riyadh Chamber of Commerce and Industry (2011).

Table 5-6: Type of organisation activity

Group	Count	Percentage
Services	104	20.6
industrial	21	4.2
Commercial	264	52.2
Construction	78	15.4
Others	39	7.7

5.2.1.7 Employees' Experience of social media usage

Table 5-7 represented the experiences of SMEs' employees in terms of social media usage over the time. It can be seen that the most respondents using social media for more than 7 years with (48.2%) while (28.7%) the second group which ranged from (3-7 years). After that, the group of (1-3 years) represented (16%) while the employees who have used the social media for one year or less were the least represented with (7.1%).

Table 5-7: Employees' experience of social media usage

Group	Count	Percentage
Year or Less	36	7.1
1–3 years	81	16.0
3–7 years	145	28.7
7+	244	48.2

5.2.1.8 *Type of Social Media*

In this section, *Table 5-8* demonstrates specific taxonomy of what is the most type of social media can be used by employees. This taxonomy included two types; Professional like (Wiki, LinkedIn…etc.) which represented (18%) and Non-professional like (Facebook, Twitter, YouTube…etc.) with (32%). However, both of them are used by the majority of participants, which held the highest represented proportion (49.4%).

Table 5-8: Type of social media used by employees

Group	Count	Percentage
Professional (i.e. Wiki, LinkedIn…etc.)	91	18.0
Non-professional (i.e. Facebook, Twitter, YouTube…etc.)	165	32.6
Both.	250	49.4

5.2.2 Analysing the Sample Size

It is considered that all statistical estimates and their accuracy are influenced by the study's sample size, with a number of scholars and professionals in the research field recommending sample minimums, which depend on the number of variables under examination and measurement. In this way, five cases for each variable has been

suggested in the study of Gorsuch (1983), with the researcher noting that, if EFA is to

be carried out, each of the cases need to be at least 100. In specific regards SEM, there

is a need for there to be between 100 and 200 cases in the sample size, as highlighted

by Loehlin (2004). Otherwise, the ratio of the cases to parameter was 5:1 (Kline, 2005).

In the case of SEM frameworks, a sample size would be considered adequate if it was

less than 100 (Kline, 2005). Owing to the fact that, in the KSA, 506 cases of SMEs

were gathered, the present study sample is viewed as being of a good standard and

therefore is acceptable when implementing PLS.

5.2.3   Data Distribution

Identifying how many times each score has happened requires assessing the properties

of the distribution scores, this is called frequency distribution. It was reported that

normal distribution means that the data should be distributed symmetrically around the

centre of all scores (Field, 2009). According to Pallant (2011) investigators who use

several of the statistical methods assume that distribution of values is "normal" which

implying the highest frequencies in the middle and lesser frequencies around the ends

(the well-known bell shape curve). However, when using the PLS-SEM, checking the

normality of the data distributions is not important. The PLS-SEM does not make

premise regarding the normality of the data distributions compare with other structural

equation modelling tools (Hair *et al.*, 2014). Several researchers (e.g., Reinartz *et al.*,

2009; Ringle *et al.*, 2009) stated that the data that have extremely non-normal

distribution (skewness and/or kurtosis) can help "PLS-SEM to provide very robust

estimations. In light of above discussion, in this research, there is no assumption about

the normality of the data distribution and hence the normality does not need to be

measured.

5.2.4   Testing for Non-Response Bias

When completing a study, it is normal to be expected that the response rate would be less than 100%, which can ultimately induce non-response bias; this is known to occur when there is a difference between the respondents garnered from those who have completed the survey and those who have not (Lambert & Harrington, 1990). In consideration to the current research, amongst the SMEs forming the sample, the response rate was 44%. In the view of Saunders et al. (2009), this is considered an adequate response. Notably, however, the issue of non-response bias is associated with decreasing the overall generalisation of the respondent sample's resulting across the entire population. When there is the occurrence of non-response bias, the sample is not viewed as representative, meaning this needs to be addressed through carrying out testing for non-response bias. In this vein, the suggestion is made that, should there be significant differences between early-completed and late-returned surveys, the survey would suffer from non-response bias (Armstrong & Overton, 1977), in line with the assumption that those completing the survey late were similar to non-respondents. Furthermore, non-response bias has been considered in the study suggested by Wu et al. (2008), which implemented t-tests seeking to establish the degree to which any differences between early and late respondents could be considered significant. The completion of t-tests was carried out in mind of drawing a contrast between the medium average of early and late respondents. Importantly, in regards the amount of items needing to undergo testing, there is a lack of agreement in this regard. As examples, 28 out of 56 original questions were selected in the study of Lambert & Harrington (1990), whereas in 20 random items out of 74 were chosen by Yaghi (2006). When coming to apply t-tests, as highlighted by Yaghi (2006), a total of fifty (50) early respondents, alongside 50 late respondents, were taken by the researcher with the adoption of fifteen

(15) randomly chosen items, as advocated by Kaleka (2012). The findings garnered, as can be seen in the results (attached in Appendix C), demonstrated a significance value as being more than 0.5 for Levene's test; this accordingly enables the assumption to be made that both groups of early and late respondents share the same variances. Moreover, it may be stated that there is a lack of significance in the case of the 'Sig. (2-tailed)', where p values should exceed 0.05, for the majority of the items, particularly when no significant difference can be identified between the groups. Accordingly, the conclusion may be drawn that, in the current work, both samples utilised may be seen to be representative of the population as a whole. Such findings do not, however, eradicate the chance that non-response bias may be present; nonetheless, non-response bias might not be an issue.

5.2.5 Missing Data and Outliers

When a question posed in a questionnaire survey is not completed, whether intentionally or accidentally, missing data occurs (Field, 2009). As can be seen when reviewing the WarpPLS-SEM software, any missing values are assigned a value equal to the mean of other values pertaining to the item under question (Kock, 2013). However, the study by Hair *et al.* (2014) recommends that, should a measure be lacking 15% or more of the values required, the investigator would then need to consider the complete removal of that factor from the study. More specifically, should the missing values be replaced with mean averages, data variability would ultimately be seen to decrease, which, in turn, would decrease the overall change of garnering significant and valuable data. As such, in line with the current data for the samples, any questionnaire items seen to be missing data at a rate of 15% or more were removed by the researcher. This equated to a total of 57 instances, meaning the response number was seen to fall from 563 to 506, which was considered adequate in mind of path analysis.

When considering the issue of outliers, some of the respondents were seen to give values that varied significantly to the remaining subjects, with the mean then positioned to suffer from bias and the standard deviation ending up inflated (Field, 2009). In this vein, it is recognised that the way in which the relationship is viewed can be significantly affected by outliers (Kock, 2013), with the researcher emphasising that, in more excessive instances, an outlier has the potential to affect the overall sign of a linear link, whether from negative to positive or in reverse. Accordingly, the recommendation is posed by some that outliers be deleted from the data (Field, 2009; Zikmund *et al.*, 2012; Saunders *et al.*, 2012). Nonetheless, the argument is suggested by Kock (2013) that outlier removal can be a mistake, as outliers can help to pinpoint the nature of the relationship, with the researchers further stating that there should only be a reason to delete outliers if they stem from measurement error. In the view of this author, the researcher is positioned to manage outliers in an efficient way, without needing to delete them from the data, should the decision be made to adopt WarpPLS-SEM software. In actual fact, it has been explained by the researcher that the analysis can be carried out in the software through completing a data ranking, with the value distances typifying the outliers significantly decreased without having to reduce the size of the sample.

When it comes to resampling algorithms, the software in use in this study offers a new 'stable' algorithm, which has been chosen by the author. This is recognised as being comparable to the jack-knifing approach in the sense of demonstrate effective management of the sample by generating standard errors that are low and effect sizes that are medium to high, which subsequently are seen to improve the data's overall statistical value. Furthermore, the application of this algorithm enables p values to be garnered that are able to estimate the p value with the greatest stability, as provided by

the various other sampling approaches offered by the software, such as blindfolding, bootstrapping and jack-knifing, for example. In this regard, the stable algorithm may be recognised as a mixture of more conventional resampling approaches, as per those mentioned earlier (Kock, 2013).

5.2.6   Common Method Bias

When considering the common method bias, the assumption is made that most of the variance witnessed can be explained by a single factor. In this respect, researchers depend on the same respondent who provides an information about the all variables (Podsakoff *et al.*, 2012). Indeed, common method bias is recognised as posing an issue to the study owing to the fact it may be recognised as an inaccuracy in measurement, which ultimately negatively impacts the measure's overall validity (Podsakoff *et al.*, 2003). Owing to method bias, there may be an increase seen in correlations, as noted by Meade *et al.* (2007), which subsequently requires examination in this work owing to the fact that there is the application of only one questionnaire in measuring all of the study items. As such, the one-factor test devised by Harman has been used in this work in order to assess common method bias (Podsakoff *et al.*, 2003). Importantly, in this test, bias would be present should the single factor seen to emerge from the analysis represent in excess of half of the model's variances.

In regards the present research's the un-rotated factor analysis, it was found that the first factor was responsible for 30% of all variance, which clearly falls below the 50% recognised as critical (see Appendix D). As such, the test is seen to offer validation in mind of the lack of common method bias (Mattila & Enz, 2002; Lings *et al.*, 2014). Accordingly, the findings further imply no common variable as posing a risk to the remaining data requiring analysis.

5.3 Model Assessment

There are two critical stages involved when assessing a conceptual model through the application of PLS-SEM, namely measurement (outer) model assessment, and the evaluation of the structural (inner).

5.3.1 The PLS-SEM Analysis

A statistical approach adopting a confirmatory stance, i.e. one centred on testing hypothesis, when completing structural theory analysis relating to a particular phenomenon is referred to as structural equation modelling (SEM). Such a theory is seen to represent 'causal' processes that are responsible for creating observations across a number of different variables (Byrne, 2010). In this vein, the links between different variables, both independent and dependent, are tested by SEM through evaluating the degree to which appropriateness or fit can be seen between the hypothetical constructs and the actual data garnered.

As has been discussed earlier, there is a fundamental need to differentiate between two terminologies when completing SEM, namely measurement model (commonly referred to as the outer model) and structural model (which may be referred to as the inner model): notably, the first of these pertains to the link between the latent constructs and their indicators, as highlighted by Loehlin (2004) and Henseler et al. (2009), whilst the second concerns the latent constructs alongside one another (Jarvis et al., 2003; Loehlin, 2004). It is noted in the study carried out by Hulland (1999) that a PLS model tends to encompass two stages in its analysis and interpretation, namely measurement model evaluation and structural model evaluation. The foundation underpinning this distinction may be recognised as the need to identify suitable stipulations and conditions for the measurement model in order for a meaningful analysis to be achieved (Jarvis et al., 2003).

The evaluation of measurement models is carried out through consideration to individual indicators' and latent constructs' reliabilities, in addition to the convergent and discriminant validities of the measures (Hair et al., 2011). Importantly, the study conducted by Hair et al., (2012) suggested an in-depth methodological review pertaining to articles written in the business studies field, and found that there is much concern regarding the number of works not reporting validity and reliability measures. As a result, it was further stated that a lack of such assessment would ultimately result in significant bias and therefore a lack of reliability in the structural model.

5.3.2 Measurement Model

The application of a measurement model tends to be seen when seeking to assess construct reliability (individual), discriminant validity and convergent validity in mind of identifying the degree to which there is suitable internal consistency in the measures.

5.3.2.1 *Individual Item Reliability*

Individual item reliability was assessed by the investigator through the application of combined and cross loadings. A structure matrix (un-rotated) provided the loadings, which were seen to encompass Pearson correlations between indicators and latent variables. Whilst the cross-loadings were from a pattern matrix (rotated), they comprised all 28 observed items; this was loaded on the latent variables specified. Such values were found to consistently fall between –1 and 1 (Kock, 2013). The suggestion is made by Hair et al. (2010) that there is a need for the loadings to exceed .50, with a further need for the p values to the loadings needing to fall below 0.05. When reviewing the factor loadings, it can be seen that, when contrasted alongside other latent variables, the former loaded higher on their theoretical specific latent variable, with all of the items' loadings seen to be more than 0.50 (p<0.001) (see ***Table 5-9***). Such findings

further imply that, in line with the required criteria, these measurement items were

satisfied and offered individual item reliability.

Table 5-9: Loadings and cross-loadings for latent variables for Saudi Arabian SMEs

	PUSE	PSS	SMUWP	KSD	KSC	HC	INN	P value
PUSE1	**(0.871)**	-0.036	0.083	0.017	0.039	-0.074	0.006	<0.001
PUSE2	**(0.838)**	-0.013	0.179	-0.016	-0.052	0.043	-0.068	<0.001
PUSE3	**(0.907)**	0.014	-0.209	0.014	0.022	0.011	0.089	<0.001
PUSE4	**(0.847)**	0.069	-0.082	-0.008	-0.043	0.028	0.002	<0.001
PUSE5	**(0.901)**	-0.032	0.041	-0.009	0.029	-0.006	-0.034	<0.001
PSS1	0.072	**(0.762)**	-0.143	-0.046	-0.026	-0.058	0.094	<0.001
PSS2	0.106	**(0.755)**	0.018	0.066	-0.308	0.098	0.071	<0.001
PSS3	-0.166	**(0.797)**	0.129	-0.083	0.202	0.026	-0.171	<0.001
PSS4	-0.003	**(0.783)**	-0.010	0.065	0.117	-0.065	0.014	<0.001
SMUWP1	0.183	0.040	**(0.695)**	-0.042	0.011	-0.071	0.139	<0.001
SMUWP2	-0.115	-0.003	**(0.772)**	0.056	0.080	0.045	-0.070	<0.001
SMUWP3	-0.200	0.083	**(0.745)**	0.054	0.011	0.119	-0.148	<0.001
SMUWP4	0.085	-0.006	**(0.693)**	-0.004	-0.151	-0.104	0.069	<0.001
SMUWP5	0.077	-0.125	**(0.667)**	-0.078	0.041	-0.002	0.031	<0.001
KSD1	-0.047	0.072	0.047	**(0.821)**	0.035	-0.071	-0.055	<0.001
KSD2	-0.173	0.043	0.100	**(0.759)**	-0.023	0.183	-0.011	<0.001
KSD3	0.167	0.065	-0.119	**(0.761)**	-0.097	-0.094	0.058	<0.001
KSD4	0.054	-0.176	-0.030	**(0.802)**	0.079	-0.011	0.011	<0.001
KSC1	-0.289	0.117	0.105	-0.074	**(0.835)**	0.056	-0.130	<0.001
KSC2	0.491	0.028	-0.336	0.033	**(0.846)**	-0.011	0.055	<0.001
KSC3	-0.222	-0.154	0.250	0.044	**(0.786)**	-0.048	0.080	<0.001
HC1	0.062	0.027	-0.079	-0.087	-0.022	**(0.830)**	-0.072	<0.001
HC2	-0.067	-0.063	0.076	0.023	0.152	**(0.783)**	-0.095	<0.001
HC3	-0.013	-0.050	-0.167	0.223	-0.010	**(0.770)**	0.044	<0.001
HC4	0.015	0.091	0.189	-0.164	-0.129	**(0.714)**	0.140	<0.001
INN1	-0.098	0.029	0.076	-0.050	0.100	-0.158	**(0.816)**	<0.001
INN2	0.021	0.030	0.025	0.265	-0.017	0.042	**(0.746)**	<0.001
INN3	0.076	-0.054	-0.095	-0.184	-0.080	0.114	**(0.852)**	<0.001

5.3.2.2   6.3.1.2 Reliability Assessment

As discussed earlier on, reliability may be defined as the degree to which a measure creates consistent findings at different times, with reliability able to be assessed through a number of different approaches, including internal consistency; this concerns a number of different items able to measure a latent construct made up of a number of different reflective indicators. When completing an analysis on internal consistency, the investigator is able to draw a comparison between items across a single instrument (Colton & Covert, 2007). From a more conventional standpoint, the most widely implemented scale reliability measure is that of Cronbach's alpha coefficient (Ketchen & Bergh, 2009). Moreover, in the case of SEM, reliability may be established through the application of a composite or construct reliability approach, which seeks to establish internal consistency. Generally speaking, there is a need for construct reliability (CR) and alpha to be a minimum of 0.7 in order to ensure internal reliability (DeVaus, 2002). In this study, as it can be seen in (***Table 5-10***), the composite reliability coefficients and the Cronbach's alpha coefficients are more than 0.70, which mean the internal consistency has been satisfied.

Table 5-10: Composite Reliability and Cronbach's Alpha

Construct	Cronbach's Alpha (α)	Composite reliability
PSS	0.778	0.857
PUSE	0.922	0.941
SMUWP	0.761	0.840
KSD	0.793	0.866
KSC	0.761	0.863
HC	0.778	0.858
INN	0.728	0.847
Note: PSS= Perceived Supervisor Support; PUSE= Perceived Usefulness of SMU experience; SMUWP= Social Media Usage for Work Purposes; KSD= Knowledge Sharing- Donation; KSC= Knowledge Sharing- Collection; HC= Human Capital; INN= Innovation.		

5.3.2.3 Validity Assessment - Convergent Validity

Validity may be defined as the capacity of a tool to measure what needs to be measured (Colton & Covert, 2007). Furthermore, convergent validity centres on the way in which a scale's items load together in regards an individual latent construct, as highlighted by Ketchen *et al.* (2007). In this work, the investigator completed the assessment of AVE (Average Variance Extracted), which is the mean variance extracted for a construct's loaded items. It is important for the AVE to be greater than 0.50 (Hair *et al.*, 2010).

Table 5-11

Table **5-11** 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 5-11: Average Variances Extracted (AVE)

Construct	Average Variances Extracted
PSS	0.600
PUSE	0.762
SMUWP	0.512
KSD	0.618
KSC	0.677
HC	0.601
INN	0.649
Note: PSS= Perceived Supervisor Support; PUSE= Perceived Usefulness of SMU experience; SMUWP= Social Media Usage for Work Purposes; KSD= Knowledge Sharing- Donation; KSC= Knowledge Sharing- Collection; HC= Human Capital; INN= Innovation.	

5.3.2.4 Validity Assessment - Discriminant Validity

The degree to which all of the constructs demonstrate between-construct variation is referred to as discriminant validity (Hair *et al.*, 2010). This is can be reflected if there is no strong relationship between the constructs (Colton & Covert, 2007). Furthermore,

the assessment of discriminant validity is achieved by the AVE's square root, which is should to exceed the correlations between-constructs (Fornell & Larcker, 1981). The AVE Should be larger than the shared variance for the individual constructs when compared with another construct, there is the validation of discriminant validity. Importantly, in this study, the condition of the AVE's square root being larger than the correlations between constructs is considered satisfied across all items (see *Table 5-12*) (Fornell & Larcker, 1981).

Table 5-12: Correlation between Latent Variables and Squares Root of AVEs

	PSS	PUSE	SMUWP	KSD	KSC	HC	INN
PSS	**(0.775)**	0.507	0.551	0.647	0.570	0.537	0.574
PUSE	0.507	**(0.873)**	0.685	0.584	0.630	0.502	0.479
SMUWP	0.551	0.685	**(0.716)**	0.622	0.655	0.590	0.591
KSD	0.647	0.584	0.622	**(0.786)**	0.726	0.682	0.707
KSC	0.570	0.630	0.655	0.726	**(0.823)**	0.667	0.679
HC	0.537	0.502	0.590	0.682	0.667	**(0.776)**	0.679
INN	0.574	0.479	0.591	0.707	0.679	0.679	**(0.806)**

Note: PSS= Perceived Supervisor Support; PUSE= Perceived Usefulness of SMU experience; SMUWP= Social Media Usage for Work Purposes; KSD= Knowledge Sharing- Donation; KSC= Knowledge Sharing- Collection; HC= Human Capital; INN= Innovation.

5.3.2.5 *Full Collinearity VIFs and Q-squared Coefficients Assessment*

Warp PLS provides full collinearity Variance Inflation Factors (VIFs) across all of the latent variables (see table000). This is can be applied in mind of measuring overall collinearity and discriminant validity.

The assessment of VIFs is carried out in line with a full collinearity test, which facilitates in establishing both vertical and lateral collinearity, also full collinearity enables the collinearity testing 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). When considering full collinearity VIFs, generally speaks, the model does not encompass multicollinearity when the score is 3.3 or lower (Kock, 2013). In this vein, the table below (*Table 5-13*) provides the overview that, across all latent variables, VIF full collinearity was lower than 3.3. Accordingly, multicollinearity was not seen to be an issue amongst any of the latent variables and the discriminant validity has been achieved.

Table 5-13: Full Collinearity VIFs Assessment

Construct	VIFs
PSS	1.910
PUSE	2.185
SMUWP	2.482
KSD	3.106
KSC	2.919
HC	2.379
INN	2.576
Note: PSS= Perceived Supervisor Support; PUSE= Perceived Usefulness of SMU experience; SMUWP= Social Media Usage for Work Purposes; KSD= Knowledge Sharing-Donation; KSC= Knowledge Sharing- Collection; HC= Human Capital; INN= Innovation.	

In line with the collinearity, reliability and validity tests carried out, it may be stated that the measurement model is successful in achieving satisfactory values, meaning the analysis of the structural model can then be carried out without any inherent problems.

5.3.3 Assessing the Structural Model

After assessed the measurement model and ensured the reliability and validities of all constructs applied in this study, the following step is to analyse the structural model in

order to check the links among the investigated variables. It is recognised that a reliable and valid measurement model is the basis of an accurate estimate of the structural model (Hanseler *et al.*, 2009). Hair *et al.* (2014b) argued that the main steps to measure the structural model are first to evaluate the significance and relevance of the structural relationships, second to assess the values of R², third to measure the effect size *f2* and finally to review the Q2. Therefore, next to the aforementioned steps, the current section evaluates the structural model.

5.3.3.1 *Model fit indices*

The model fit indices, in line with overall fit, was assessed through the application of three different measures, namely Average Path Coefficient (APC), Average R-squared (ARS) and Average Variance Inflation Factor (AVIF). Kock (2012) suggested that APC and ARS may be found to be significant (P< 0.05), whereas the AVIF value needs to fall below 5. The table below (***Table 5-14***) details the range of the measures in regards the fitting model, which can be seen to represent a good fit.

Table 5-14: Model Fit Indices

Indices	Value	Comments
Average path coefficient (APC)	0.409	P<0.001
Average R-squared (ARS)	0.498	P<0.001
Average block VIF (AVIF)	2.345	acceptable if <= 5, ideally <= 3.3
Average full collinearity VIF (AFVIF)	2.508	acceptable if <= 5, ideally <= 3.3

In this research, the investigator applied the stable re-sampling approach. This was considered to be more proficient in achieving more stable resample path coefficients, which were seen in the form of p values that were more reliable. In mind of this, it is

suggested that, when the sample size is small, i.e. below 100, this method is not always recommended (Kock, 2013).

5.3.3.2 *The path analysis (structural relationships)*

The results of the data analysis are presented in **Figure 5-1**. The arrows and adjacent values illustrate the effects between the variables and their β coefficients, including their p values. R^2 values show the explained variance of endogenous latent variables in the structural model (Hair *et al.*, 2014); these are displayed under the endogenous variables.

The structural model relationships shown (**Figure 5-1**) in represent the hypothesised relationships proposed in section 3.3. These are represented by the path coefficients (β). The β coefficients have standardised values ranging from -1 to +1, values close to +1 represents strong positive relationships whereas values close to -1 represents the contrary (Hair et al., 2014). Accordingly, the assessment of the path coefficients (β) indicated that the seven hypothesised paths are all positive and significant. With respect to SMEs sample, **Figure 5-1** illustrates that perceived usefulness of SMU experience and perceived supervisor support had a positive and significant effect on SMU for work purposes in Saudi Arabian SMEs with (β=0.60, 0.24; P<0.001 respectively). As for the effect of SMUWP for work purposes on knowledge sharing, (SMU) for work purposes was found to have a positive and statistically significant influence on knowledge sharing (donation) and (collection) with (β=0.66, 0.69; P<0.001 respectively). While on human capital, SMU for work purposes was found to has a positive and significant influence on human capital with (β=0.63; P<0.001).

Turning to the impact of knowledge sharing (donation) and (collection) on innovation. Knowledge sharing (donation) and (collection) was found to have a positive and significant influence on innovation with (β=0.30, 0.20; P<0.001 respectively). Finally, it was found that the human capital had a significant impact on innovation (β=0.27; P<0.001).
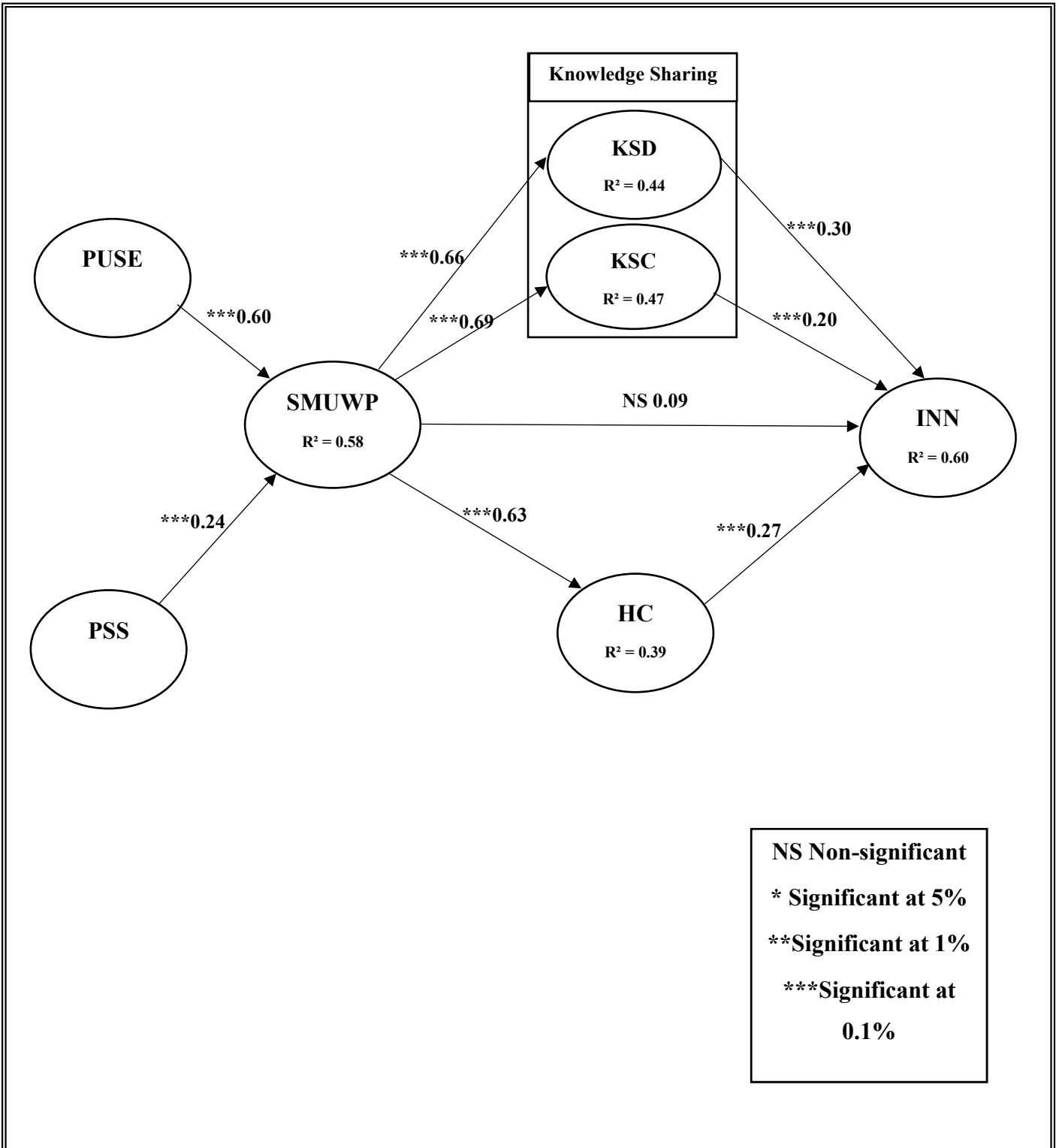
Figure 5-1: Estimated Coefficients for Path Analysis for SMEs Model

With regard to R², several researchers (e.g., Henseler *et al.*, 2009; Hair *et al.*, 2012) indicated that the evaluation of the R² coefficient (also known as the coefficient of determination) of the endogenous latent variables is an essential step in assessing the structural model. In using PLS-SEM, Hulland (1999) and Peng and Lai (2012) stressed the importance of reporting all R² values. However, despite its obvious significance, Martinez-Lopez *et al.* (2013) found in their analysis of 191 papers published in the four leading marketing journals between 1995 and 2007, that only 35% have reported the R² values. Hair *et al.* (2014a: 93) defined the R² as the "amount of explained variance of endogenous latent variables in the structural model".

The review of the literature reveals that, the acceptable level of R² values seems to differ from one discipline to another. For instance, scholars such as Hair *et al.* (2011) indicted that 0.75 are seen to be high in success driver studies, whereas, 0.20 is considered as high in consumer behaviour. However, the authors have set 0.75, 0.50 and 0.25 can be seen as high, moderate and weak. Furthermore, researchers (e.g., Chin, 1998; Henseler *et al.*, 2009) stated that values of 0.67, 0.33 and 0.19 could be considered as high, moderate and weak. ***Table 5-15*** summarise all the coefficient values.

Table 5-15: Path Coefficients, P Values and R Squares

Hypothesised Links		Path Coefficient	P Value	R²	Description
PSS → SMUWP		0.24	P<0.001	0.58	Positive, significant and close to high
PUSE → SMUWP		0.60	P<0.001	0.58	Positive, significant and close to high
SMUWP → KSD		0.66	P<0.001	0.44	Positive, significant and moderate
SMUWP → KSC		0.69	P<0.001	0.47	Positive, significant and moderate
SMUWP → HC		0.63	P<0.001	0.39	Positive, significant and moderate
KSD → INN		0.30	P<0.001	0.60	Positive, significant and close to high
KSC → INN		0.20	P<0.001	0.60	Positive, significant and close to high
HC → INN		0.27	P<0.001	0.60	Positive, significant and close to high

In the *Table 5-15*, the interpretation of the R^2 values of the endogenous variables is as follows, 58% of SMU for work purposes is predicted by perceived usefulness of SMU experience and perceived supervisor support, while 44% of knowledge sharing (donation) and 47% of knowledge sharing (collection) are predicted by SMU for work purposes. In addition, 39% of human capital is predicted by SMU for work purposes as well. Meanwhile, 60% of innovation is predicted by knowledge sharing (collection & donation) and human capital.

Regarding the effect size of variables, it is suggested that the effect size should also be examined in order to show the extent to which a predictor variable weighs at the structural level (Henseler *et al.*, 2009). The effect size (*f2*) is defined "as the increase in R^2 relative to the proportion of variance that remains unexplained in the endogenous latent variable" (Peng and Lai, 2012: 473). According to Cohen (1988 cited in Peng and Lai, 2012 and Hair *et al.*, 2014a), values of 0.02, 0.15 and 0.35 are considered to be weak, medium and large respectively. *Table 5-16* report the values for the effect sizes.

Table 5-16: The Effect Sizes results

Hypothesised Links		Effect Size	Description
PSS ⟶	SMUWP	0.140	Medium
PUSE ⟶	SMUWP	0.439	Large
SMUWP ⟶	KSD	0.663	Large
SMUWP ⟶	KSC	0.689	Large
SMUWP ⟶	HC	0.626	Large
KSD ⟶	INN	0.304	Large
KSC ⟶	INN	0.203	Medium
HC ⟶	INN	0.274	Medium

With regard to the Q-squared coefficient, several researchers emphasised the importance of reporting the Stone-Geisser Q2 measure (e.g Chin, 1998; Henseler *et al.*, 2009; and Hair *et al.*, 2012; Hair *et al.*, 2014a). As has been highlighted in the study by Hair *et al.* (2014a), the application of q-squared coefficient is carried out in order to assess the model's endogenous latent variable in terms of its predictive validity. In this regard, there is the need for the q-squared coefficient to exceed 0 whilst a q-squared coefficient of less than 0 would make the suggestion that predictive validity is lacking in the model (Hair *et al.*, 2010; Roldan and Sanchez-Franco, 2012). In this study, *Table 5-17* demonstrated that the Q-squared coefficients for SMU, KSC, KSD, HC and INN were above zero. Therefore, the model contributed to support predictive validity.

Table 5-17: Q-squared Coefficients Assessment

Construct	Q-squared coefficients
PSS	
PUSE	
SMUWP	0.572
KSD	0.435
KSC	0.469
HC	0.386
INN	0.602

5.4   Direct and Indirect Effects (Mediation Test)

Importantly, the mediating variable is recognised by Frazier *et al.* (2004) as a variable with the capacity to describe the link between an independent variable and a dependent variable, with the scholar going on to explain that a mediator gives data pertaining to significant direct and established relationships. Accordingly, the mechanism through which a direct relationship may be witnessed can be explained by a mediator (Frazier *et al.*, 2004).

In the view of Kock (2013), there may be either full (complete) mediation or partial mediation. The scholar goes on to state that, when the links between independent and dependent variables is significant and becomes insignificant when the mediating variable is included, full mediation is witnessed. On the other hand, however, when the direct link is significant when the mediating variable is included, only partial mediation is witnessed.

In line with the works completed by scholars Kock (2013) and Hair *et al.* (2014a), it is noted that there is a need for a mediating effect to be evaluated in line with various different steps. Primarily, the direct link between the independent and dependent variables needs to be identified without the inclusion of the mediating factor. If this is significant, the second step can then be carried out. The second step involves the mediating variable's inclusion within the link: should there be significance in the indirect effect, as well as with the direct effect, the conclusion may then be drawn that there is partial mediation. On the other hand, should there be significance in the indirect effect whilst the direct effect is non-significant, full mediation can then be established. Finally, should there be non-significance in the indirect effect, the statement may be made that mediation effect is completely lacking.

In this study, knowledge-sharing and human capital are expected to demonstrate a mediating role in regards the link between SMUWP as an independent variable and innovation as the dependent variable. The various stages adopted in this study in mind of identifying the mediating effect can be seen displayed in (***Table 5-18***).

Table 5-18: Mediating Effect

Direct and Indirect Relationship	Relationship		Path Coefficient	P value	Nature
<u>Step One</u> Direct (without the mediating variables)	SMUWP ⟶	INN	0.62	<0.001	Significant
<u>Step Two</u> Direct	SMUWP ⟶	INN	0.09	0.024	Non-Significant
<u>Step Two</u> Indirect (Through) Knowledge sharing (donation & collection) and Human capital.	SMUWP ⟶	KSD	0.66	<0.001	Significant
	SMUWP ⟶	KSC	0.69	<0.001	Significant
	SMUWP ⟶	HC	0.63	<0.001	Significant
	KSD ⟶	INN	0.30	<0.001	Significant
	KSC ⟶	INN	0.20	<0.001	Significant
	HC ⟶	INN	0.27	<0.001	Significant

Based on *Table 5-18*, it can be concluded that, the indirect effect is significant and the direct effect is non-significant. This means a full mediation effect has taken place between social media usage for work purposes (SMU) and innovation in Saudi Arabian SMEs. In addition, to assess how much of the direct effect does the indirect link absorb (via the mediators), the Variance Accounted for (VAF) can be calculated using the formulas below (Hair *et al.*, 2014a). According to the authors, a VAF higher than 80% indicates a full mediation, while a VAF between 20% and 80% would mean a partial mediation and a VAF less than 20% shows that there is no mediation. *Table 5-19* below subsequently summarise meditation analysis through using the VAFs calculations below.

$$VAF = \frac{(Pim*Pmd)}{(Pim*Pmd+Pid)}$$

Where:

Pim: the path between the independent and mediator.

Pmd: the path between the mediator and the dependent variable.

Pid: the path between the independent and the dependent variables.

Table 5-19: Summary of Meditation Analysis

Investigated relationships	B	% of the total effect (% of the total indirect effect mediation Magnitude
SMUWP ——→ INN	-	-
Total effect	0.60***	100%
Direct effect before including Knowledge sharing (KSD, KSC) and Human Capital.	0.62***	100%
Direct effect after including Knowledge sharing (KSC, KSD) and Human Capital.	0.09	Non-Significant
Total indirect via Knowledge sharing (KSD, KSC) and Human Capital. [SMUWP → (KSC, KSD) & HC → INN]	0.37***	94% (Full mediation)
Specific indirect effect via Knowledge sharing. [SMUWP → (KSD, KSC) → INN]	1.35*0.50 = 0.67. 0.67+0.09 = 0.76. 0.67/0.76 = 0.88.	88% (Full mediation)
Specific indirect effect via Knowledge sharing. [SMUWP → HC → INN]	0.63*0.27 = 0.17. 0.17+0.09 = 0.26. 0.17/0.26 = 0.65.	65% (partial mediation)

Note/ (SMUWP→KSD=0.66); (SMUWP→KSC=0.69); (SMUWP→HC=0.63); (KSD→INN=0.30); (KSC→INN=0.20); (HC→INN0.27); (SMUWP→INN=0.09).

Based on *Table 5-19*, it can be concluded that, a full mediation effect has taken place. Precisely, the VAFs of these effects were found to be between 80% and 100%. As example from practical perspective, the interpretation is that for every one standard deviation increase in the SMUWP, the level of innovation will increase by 37% with other variables remaining the same. In fact, less than 6% of the SMUWP effect on the innovation which explained through direct effect, while 94% via indirect effect. In more

details, 88% is explained through KS and 94% through all of the both mediators (knowledge sharing and human capital) within Saudi Arabian SMEs. (See *Table 5-19*).

5.5 Summary of the Results and Hypotheses Testing

After the analysis above, the hypotheses can be supported or rejected. *Table 5-20* recalls and test the proposed hypotheses set in section 3.3.

Table 5-20: Summary of supported Hypotheses

	Research hypotheses	Supported?
H1	Perceived supervisor support has a positive influence on social media usage for work purposes.	**Yes***
H2	Perceived usefulness of social media usage experience has a positive influence on social media usage for work purposes.	**Yes***
H3a	Social media usage for work purposes has a positive influence on knowledge sharing-(donation).	**Yes***
H3b	Social media usage for work purposes has a positive influence on knowledge sharing-(collection).	**Yes***
H4	Social media usage for work purposes has a positive influence on Human capital.	**Yes***
H5a	Knowledge sharing-(donation) has a positive influence on innovation.	**Yes***
H5b	Knowledge sharing-(collection) has a positive influence on innovation.	**Yes***
H6	Human capital has a positive influence on innovation.	**Yes***
H7	Social media usage for work purposes has a positive influence on innovation through the mediating effect of knowledge sharing and human capital.	**Yes***

As shown in *Table 5-20*, the analysis of the impact of social media usage for work purposes on innovation indicated that all hypotheses are positively significant and supported in SMEs. These results are presented as following:

Hypothesis 1: *There is a positive relationship between perceived supervisor support (PSS) and social media usage for work purposes (SMU) in SMEs.*

In this hypothesis, perceived supervisor support (PSS) was expected to be positively associated with social media usage for work purposes. It was revealed that PSS had a positive and significant effect on SMUWP (β=0.24, P<0.001). From practical viewpoint, these findings imply that for every one standard deviation in PSS, the level of SMUWP will increase by (0.24). Therefore, the proposed association between PSS and SMUWP was supported at Saudi Arabian SMEs.

Hypothesis 2: *There is a positive relationship between perceived usefulness of SMU experience (PUSE) and social media usage for work purposes (SMUWP) in SMEs.*

In this hypothesis, perceived usefulness of SMU experience (PUSE) was anticipated to be positively associated with social media usage for work purposes. As hypothesised, the association between PUSE and SMUWP was significant in Saudi Arabian SMEs (β = 0.60, P<0.001), indicating that the more level increase of PUSE, the higher use of social media toward work purposes. This result implies that for every 10 percent increase PUSE, there is 6.0 percent increase in SMU for work purposes in SMEs. The hypothesized effect was supported (H2).

Hypothesis 3: *There is a positive relationship between social media usage for work purposes (SMUWP) and knowledge sharing (KSD, KSC) in SMEs.* This hypothesis is divided into sub- hypothesises including (H3a, H3b).

H3a. In this hypothesis, social media usage for work purposes (SMUWP) was anticipated to be positively associated with knowledge sharing-donation (KSD). As hypothesized, the association between social media usage for work purposes and knowledge sharing- donation was significant in Saudi Arabian SMEs (β = 0.66,

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P<0.001), indicating that the more use of social media for work purposes, the higher knowledge sharing donation. This result implies that for every 10 percent increase SMUWP, there is 6.6 percent increase in KSD in SMEs. The hypothesized effect was supported (H3a).

 H3b. Proposed social media usage for work purposes (SMUWP) was positively associated with knowledge sharing-collection (KSC). As hypothesized, the analysis suggested that SMUWP showed positive associations with KSC (β=0.69, P<0.001). From practical viewpoint, these findings indicate that the more use of social media for work purposes, the higher knowledge sharing-donation. This result also implies that for every 10 percent increase SMUWP, there is 6.9 percent increase in KSC in SMEs. Therefore, the proposed association between SMUWP and KSC was supported at Saudi Arabian SMEs in (H3b).

Hypothesis 4: *There is a positive relationship between social media usage for work purposes (SMUWP) and human capital (HC) in SMEs.*

H4: Proposed social media usage for work purposes (SMUWP) was positively associated with human capital (HC). As hypothesized, the analysis suggested that SMUWP showed positive associations with HC (β=0.63, P<0.001). From practical viewpoint, these findings indicate that the more use of social media for work purposes, the higher human capital. This result also implies that for every 10 percent increase SMUWP, there is 6.3 percent increase in HC in SMEs. Therefore, the proposed association between SMUWP and HC was supported at Saudi Arabian SMEs in (H4).

Hypothesis 5: *There is a positive relationship between knowledge sharing (KSD, KSC) and innovation in Saudi Arabian SMEs*. This hypothesis is divided into sub-hypothesises including (H5a, H5b).

H5a: Proposed knowledge sharing-donation (KSD) was positively associated with firm's innovation. It was revealed that KSD had a positive and significant effect on innovation ($\beta=0.30$, $P<0.001$). From practical viewpoint, these findings imply that for every one standard deviation in KSD, the level of innovation will increase by (0.30). Hence the proposed association between KSD and innovation was supported at Saudi Arabian SMEs (H5a).

H5b: Proposed knowledge sharing-collection (KSC) was positively associated with firm's innovation. It was revealed that KSC had a positive and significant effect on innovation ($\beta=0.20$, $P<0.001$). From practical viewpoint, these findings imply that for every one standard deviation in KSC, the level of innovation will increase by (0.20). Hence the proposed association between KSC and innovation was supported at Saudi Arabian SMEs (H5b).

Hypothesis 6: *There is a positive relationship between human capital (HC) and innovation (INN) in Saudi Arabian SMEs*.

In this hypothesis, human capital was expected to be positively associated with innovation. It was revealed that human capital had a positive and significant effect on innovation ($\beta=0.27$, $P<0.001$). From practical viewpoint, these findings imply that for every one standard deviation in human capital, the level of innovation will increase by (0.27). Hence the proposed association between human capital and innovation was supported at Saudi Arabian SMEs (H6).

H7: Social media usage for work purposes (SMUWP) has a positive influence on innovation through the mediating of knowledge sharing (KSD, KSC) and human capital (HC) in Saudi Arabian SMEs.

The direct effect of social media usage for work purposes (SMUWP) on innovation was found to be non-significant with (β=0.09). However, the indirect effect was positive and significant with full mediation through both knowledge sharing (KSD, KSC) and human capital (HC) in Saudi Arabian SMEs. In fact, the VAF has exceeded 90% confirming that the impact of SMUWP on innovation was fully explained by knowledge sharing and human capital. As a result, (H7) was supported.

5.6 Chapter Summary

This chapter presented the statistically results of this study. The researcher used several statistical procedures before conducting PLS-SEM analysis version 5. Descriptive statistics, non-response bias and common method bias were used to check outliers, missing values and measurement errors. The findings imply that non-response might not be an issue. Furthermore, common variables bias and common method bias are also not viewed as being a problem. In a comparable vein, the study has considered various factors of relevance, including outliers, missing data and normality, in mind of assessing the data's overall quality. Following the detailing of the characteristics pertaining to the samples, completing a check for outliers, measurement errors and missing values, the evaluation of the hypothesised model suggested in Section 3.3 was then evaluated through the application of the structural model, with the relationships between constructs undergoing testing. The PLS model was then analysed and interpreted through two different steps, encompassing measurement model evaluation and structural model evaluation. In first stage, the assessment of the measurement model was used to measure model of the reflective first order constructs. The measurement model of the reflective first order constructs requested to check individual item reliability, constructs' reliability, constructs' validity and collinearity test.

Assessment of the reflective first order constructs suggested that individual item reliability needed to be rectified as some indicators' loadings were lower than 0.7. Accordingly, some items were dropped and the indicators' loadings and their p values was checked again for the measurement model; all the combined loadings of the retained indicators became greater than the thresholds 0.7, hence confirming that the indicators used in the targeted sample present a satisfactory individual reliability. As for constructs' reliability, constructs' validity and collinearity test was conducted and the results showed that constructs' reliability, constructs' validity and collinearity are accepted.

In contrast, when considering the tests carried out in regards first-order variables, namely collinearity, reliability and validity, the measurement model is seen to demonstrate satisfactory values, meaning the researcher is able to complete the structural model analysis in order to evaluate the hypothesised model and accordingly complete testing on the various between-construct links. There was the acceptance of all hypotheses, with the key model predictions suggesting the statistical significance and support for all hypotheses across SMEs sectors. The following chapter will provide a more in-depth discussion and review of the findings garnered throughout the course of this analysis.

6 CHAPTER SIX: DISCUSSION

This chapter discusses the results, which are reported in Chapter 5. Here, the results from Saudi Arabian SMEs are discussed and linked to the proposed research questions of this study. However, prior to doing so, the following section will briefly recall the research questions.

6.1 The Research Questions Revisited

The research questions in this study are divided into four questions (Q1, Q2, Q3 and Q4) (see **Table 6-1**) which have been derived based on the research aim and objectives. Each group contains a set of hypotheses (see **Table 6-2**) which can be confirmed by answering the relevant question. The first group of research questions aims to empirically test the critical factors of social media adoption and their impact on SMUWP in Saudi Arabian SMEs. In addition, it includes a set of hypotheses: H1 and H2. The second group aims to empirically study the direct effects of SMUWP on the KS process and HC in SMEs (which contains H3a, H3b and H4). The third group aims to investigate the effect of the KS process and HC on innovation in SMEs (this includes H5a, H5b and H6). The fourth group aims to test the relationship between SMUWP and innovation through the mediating role of the KS process and HC in Saudi Arabian SMEs.

Table 6-1: Research Questions

No.	Research Question	Related H.
RQ1	Are the perceived usefulness of SMU experience and perceived supervisor support having a positive effect on the use of SMUWP?	H1 and H2
RQ2	To what extent does SMUWP impact on knowledge sharing and human capital in SMEs?	H3a, H3b and H4
RQ3	What are the relations between knowledge sharing, human capital and innovation within SMEs?	H5a, H5b and H6
RQ4	To what extent does SMUWP impact innovation through knowledge sharing and human capital in SMEs?	H7

Table 6-2: Research Hypotheses

No.	Research Hypotheses	Q No.
H1	*There is a positive relationship between perceived supervisor support and social media usage for work purposes.*	**RQ1**
H2	*There is a positive relationship between perceived usefulness of social media usage experience and social media usage for work purposes.*	
H3a	*There is a positive relationship between social media usage for work purposes and knowledge sharing- collection.*	**RQ2**
H3b	*There is a positive relationship between social media usage for work purposes and knowledge sharing- donation.*	
H4	*There is a positive relationship between social media usage for work purposes and human capital.*	
H5a	*There is a positive relationship between knowledge sharing- donation and innovation.*	**RQ3**
H5b	*There is a positive relationship between knowledge sharing- collection and innovation.*	
H6	*Human capital has a direct positive effect on innovation.*	
H7	*There is a positive relationship between social media usage for work purposes and innovation through the mediating effect of knowledge sharing and human capital.*	**RQ4**

6.2 Perceived Supervisor Support Enhances Social Media Usage for Work Purposes (RQ1)

Regarding the findings on the impact of PSS on SMUWP, the results supported H1, which predicted that the PSS positively and significantly affects SMUWP. This finding is consistent with what has been stated by previous studies and theories, whether directly or indirectly (e.g. Charoensukmongkol, 2014; Cheng et al., 2012; Guo and Stevens, 2011; Venkatesh et al., 2003; Fishbein and Ajzen, 1975), that supervisor support has a critical and important role in promoting SMUWP. For example, in the study of Venkatesh *et al.* (2003) the Unified Theory of Acceptance and Use of Technology (UTAUT) was devised and presented, which considers the ways in which the behaviours and intentions of people—specifically in consideration to technology—may be affected by other factors, such as social influence. Venkatesh defines social influence as "the extent to which an individual feels that other people important to him/her believes that they should use a system or new technology" (Venkatesh et al., 2003). This can be supported by a social influence model of technology use, as developed by Fulk et al. (1987), who suggest that various social influences (e.g. co-workers or a supportive supervisor) can be an influencing factor on individuals' attitudes towards the use of new technologies. The present study further highlights the findings garnered and conclusions drawn by Fishbein & Ajzens (1975), notably through their Theory of Reasoned Action (TRA), which is centred on intended behaviours and the determinants of such. Although a framework such as this tends to be more general, nonetheless, it highlights a number of different human behaviours (Ajzen & Fishbein, 1980). A similar logic, in regard to social influence, can be supported by the TRA, namely that a "subjective norm is considered as an individual's perceptions of what significant others think about the individual performing a specific behaviour" (Fishbein and Ajzen, 1975). Furthermore, according to Herman et al. (2013), employees usually

engage in a social exchange relationship with their immediate supervisors and are often influenced by them. In addition, Kersaint et al. (2003) believed that supervisors who regard technologies as a positive influence would not only be more comfortable using these technologies, but would also be more likely to recommend that their subordinates use them too.

Indeed, the result of this research is, in general, also consistent with other previous studies in terms of the significant relationship between similar concepts. For example, Cheng et al. (2012) have examined the relationship between factors in the working environment, which include support from managers, support in the job role and support from the employee's organisation, to encourage them to use an e-learning system in the workplace. In this study, the sample was made up of employees from different firms operating in a number of sectors, including commercial organisations, public sectors, and schools in China. The sample size was successful in garnering 222 usable responses, with the findings illustrating a positive effect between perceived managerial support and employee intention—in this case, to utilise a system recognised as potentially valuable in the workplace e-learning system in regards individual and social learning. Consequently, this study mentioned that the managerial concept includes supervisor support and supervisor reinforcement, which is a motivating force and will help trainees to benefit from not only using the e-learning system, but also help to encourage them to accept the system. Moreover, this is seen to demonstrate a positive link between that of social influences and the way in which employees viewed the value of workplace technology (Lewis *et al*., 2003; Venkatesh & Davis, 2000). Similarly, Guo and Stevens (2011), who carried out a study in the education sector, suggested that the attitudes and behaviours of instructors towards new technologies have impacted students' perceptions with regard to new technologies and their use through the prior

expertise and perceived usefulness of wiki use. In addition, several studies agreed that social influence impacts on the adoption of new technology.

However, the differences of the current research compared with both Cheng et al. (2012) and Guo and Stevens (2011) are seen in the context of study of this research and the nature of the relationship, which investigates the direct impact of PSS on SMU in particular.

From an additional aspect, regarding the consistency of social influence related to social media adoption, other studies have confirmed that social influence has a positive relationship with social media use. For example, the study conducted by Workman (2014), in the context of a large shopping mall in central Florida, with a sample size of 382, investigated the UTAUT factors in regard to social media use. This study examined the relationship between the social influences on social media usage and found a direct positive effect. In spite of such consistency, in terms of a general perspective, the differences involved in the concept of social influence, which is considered to be a wide concept, may include supervisor support, co-worker support and so on. Thus, this research looked at PSS in particular. However, a relationship between PSS and social media usage has been supported by Charoensukmongkol (2014), who found a significant relationship similar to that outlined in the current study. However, such study findings revealed that PSS has a direct negative impact on social media use in the workplace, which is contrary to this study's findings. Such a contrast can be explained by what Charoensukmongkol (2014) mentioned: that the main reason was due to the fact that employees think that social media usage will be a waste of time and will affect their productivity at work. Such a perspective came from their expectation of their supervisors' perceptions regarding the general use of social media in the workplace. However, this justification is logical in regard to the use of social

media for personal usage – for pleasure or non-work related activities. Furthermore, the current study has looked at social media usage for work purposes, such as knowledge acquisition and a sharing and learning platform, which is considered to be a useful direction and can facilitate productivity and enhance an organisation's performance, according to the current literature. This reflects a different usage than what has been proposed by Charoensukmongkol (2014). This study deduced that leaders and supervisors are seeking to exploit the advantages of SMUWP. This can be supported by looking at the theory of social exchange, which refers to the formation of human relationship by using a subjective cost-benefit analysis and then carrying out a comparison of the alternatives. In addition, previous studies (Piccoli, Ahmad & Ives, 2001; Sun, Tsai, Finger, Chen & Yeh, 2008; Webster & Hackley, 1997) have shown that by having a supervisor who offers encouragement and support directly reflects, in a positive manner, how workers perceive and use the new technology. However, if a supervisor has a negative attitude towards social media then this negative attitude would influence their worker's attitude (Eales, Hall & Bannon, 2002). Furthermore, additional justification can be summarised by the following points:

1- This study conducted SMEs as a different context and the nature of SMEs requires that the relationship between the supervisor and subordinates is closer and stronger than what exists in large enterprises, and this can be illustrated from the small number of employees in SMEs.

2- Social media is a free platform, which encourages use by SMEs due to their lower budgets and the costs of buying new/specific information systems.

3- SMEs are enhanced by competitive advantages and innovation in terms of success, and thus the need to utilise external knowledge resources became a demand that can be facilitated by social media tools. Therefore, supervisors will encourage their subordinates to interact with such resources.

6.3 Perceived Usefulness of SMU Experience Increases Social Media Usage for Work Purposes (RQ1)

In regard to the findings on the impact of Perceived Usefulness of SMU Experience (PUSE) on social media usage for work purposes, the results supported H2, which predicted that the PUSE positively and significantly affected SMUWP. This finding is consistent with what has been stated by previous studies and theories (e.g. Siamagka et al., 2015; Rauniar et al., 2014; Wamba, 2014; Cheng et al., 2012; Guo and Stevens, 2011; Venkatesh et al., 2003; Davis, 1989; Fishbein and Ajzen, 1975), that the perceived usefulness of technology use has a critical and important role in promoting the acceptance of technology by the user. For example, the empirical study by Rauniar et al. (2014) looked at full-time students from two business schools (one public university and one private university) in the USA, who were simultaneously requested to participate in an online survey (with a sample size of 389). This study examined TAM factors on the adoption of social media use. The results illustrated that perceived usefulness has a positive impact on the actual use of social media through the effect role of intension to use. In addition, this was also demonstrated by Siamagka et al. (2015), by using quantitative data from B2B organisations in the UK. Data was collected from a sample size of 5,000 organisations, and the sample size was 105 usable questionnaires. The findings suggested that the perceived usefulness of social media within a B2B context is determined by image, perceived ease of use and perceived barriers, and the results show that the adoption of social media is significantly affected by how innovative an organisation is as well as how useful they perceive social media to be. A similar study was carried out by Wamba (2014), which was conducted in the context of UK, the US, Canada, India and Australia. Wamba's study collected data from 2,556 users of social media at their place of work. The study has examined the roles of perceived usefulness, perceived ease of use and perceived risk in the adoption of social

media usage within the workplace. The findings presented showed that perceived usefulness has a significant and positive relationship with regard to the intention to use social media in the workplace.

As can be seen in the aforementioned discussion, the differences between previous studies and the current research finding manifest in the nature of concepts which include the difference of expression in regard to the perceived usefulness of social media and the nature of social media usage. In other words, the previous studies conducted research on the perceived usefulness of social media usage towards the adoption of social media in general, while this research adopted the view of perceived usefulness of social media usage experience towards the adoption of social media for work purposes – both studies indicate different measurements and different expressions of the nature of the relationship. This is due to the fact that this study assumes the employees already have previous experience in terms of general or personal use of social media, which means that they may have an opinion of such tools, in terms of usefulness, in relation to their prior use of the technology. Therefore, such experience can lead to actual use of social media for work purposes. This can be supported by what Rauniar et al. (2014) suggested, that the "future intention leads to further engagement with the social media site and the positive attitude towards social media should be a result of an overall favourable social media usage experience" (Rauniar et al. 2014). Furthermore, King and Xia (1997) mentioned that "an individual's specific experience with communication media affected their perceptions of media appropriateness, and the positive effects of the changes in learning experience were particularly salient for new media. In addition, previous studies have also demonstrated that familiarity with a new technology was important in determining how people used the new technology" (Guo et al., 2008).

Consequently, the findings of this research are also consistent with the empirical study conducted by Guo and Stevens (2011), which has examined the effect of wiki prior experience on the perceived usefulness of wiki use by students and its effect on future wiki usage. This study found a positive relationship and stated that students who had used wikis in the past, or had tutors who promoted a positive image about the use of wikis, would use these resources and also gain knowledge from them and plan to use them in the future.

6.4 Social Media Usage for Work Purposes Increases Knowledge Sharing (KSD and KSC) (RQ2)

Regarding the findings on the impact of social media usage for work purposes on the KS process (collection and donation), the results supported H3 (a, b), which predicted that SMUWP positively and significantly affects the KS process. This finding is consistent with other research which agreed on the importance and effect of social media on KS (e.g. Omar et al., 2016; Qi and Chau, 2016; Mei, 2016; Pi et al., 2013; Chan et al., 2013; Panahi et al., 2012). For example, Omar et al. (2016) completed an analysis as to the effects of the adoption of social media and perceived team efficacy on the tendency of employees to share knowledge, specifically in the context of Malaysian oil and gas organisations. A positive link was identified between knowledge-sharing behaviours and social media usage, with the further indication that knowledge-sharing behaviours amongst staff in the organisation was notably influenced by social media use when contrasted alongside perceived team efficacy. The differences between the current research and the aforementioned study covers several aspects: first, they looked at social media use in general while this study focused on social media usage specifically for work purposes. Second, they conducted knowledge sharing behaviour while the current study adopted a van de Hoof KS process. Finally, their sample was

from a large organisation in Malaysia while this study was conducted in SMEs in Saudi Arabia.

Accordingly, other studies, such as Qi and Chau (2016), confirmed that social media usage at work plays an important role in supporting knowledge sharing. This study examined the relationship of enterprise social networking tools (Enterprise 2.0) on organisational learning through the mediating effect of a knowledge management process. They found that social media use by employees was significant and has a positive impact on knowledge sharing in the organisation. However, Enterprise 2.0, according to Leonardi et al. (2013), is recognised as software that is designed especially for organisations and looks at the interaction between their members, while the current study considered the use of public social media and how it can be used in the work environment.

Similarly, the empirical research of Mei (2016) also found support regarding the role of social media use at work on knowledge sharing with employees' sample. The research examined such relationships through the mediation of social capital and found a significant relationship that was positively related to knowledge sharing. Such an examination has been carried out through the mediating effect of social capital dimensions, whereas the current research tested this relationship directly. In addition, this research looked at social capital as a theory to interpret and explain the logic of such a relationship. This kind of adoption is consistent with several previous studies, such as Omar et al. (2016).

Furthermore, the empirical study by Chan et al. (2013) looked at the use of blogs and Facebook to act as a support in relation to knowledge management, specifically with regard to creation, sharing and application. They discovered that both the use of blogs and Facebook generally support knowledge management, but Facebook has a greater

potential in regard to knowledge sharing compared with blogs. Furthermore, a number of other works have investigated the influences affecting particular factors in regards the adoption of social media instruments in terms of knowledge-sharing (Yu *et al.*, 2010; Pi *et al.*, 2013; Ma & Chan, 2014; Jadin *et al.*, 2013). Yu *et al.* (2010) considered the utilisation of weblogs and accordingly established various elements as influence the sharing of knowledge across online communities, including enjoying helping others, fairness, openness and usefulness. Furthermore, the factors influencing users' overall inclination to partake in Facebook Groups for the purpose of sharing knowledge were examined in the study of Pi *et al.* (2013), with the findings suggesting that reputation has a notable effect on the viewpoints of group members concerning knowledge-sharing, as well as a sense of self-worth both directly and indirectly affecting the sharing of knowledge. Moreover, a number of other factors recognised as human behaviour-related, including attitude, social network ties, subjective norms and web-specific self-efficacy, were found to be sound predictors of knowledge-sharing amongst those students using SNS tools (Chen *et al.*, 2009). Moreover, altruism, perceived online attachment motivation and perceived online relationship commitment of SNS users—notably all human behavioural factors—were similarly found to have a significant effect on the sharing of knowledge in an online context (Ma & Chan, 2014), with Panahi *et al.* (2012) having crated and presented a theoretical framework outlining knowledge-sharing requirements and social media characteristics. The framework was seen to hypothesise five different social networking characteristics variables, namely experience-sharing, informal relationship/networking, mutual trust and social interaction, all of which examined their influence in regards the sharing of tacit knowledge.

However, as can be seen from the above argument, and up to the best of the author's knowledge in this research, there is no study that has looked at the relationship between social media for work purposes – especially knowledge sharing process and, particularly, in the context of SMEs.

6.5 Social Media Usage for Work Purposes Increases Human Capital (RQ2)

With respect to the findings on the impact of social media usage for work purposes on human capital, the results supported (H4), which predicted that SMUWP positively and significantly affects human capital. This relationship was inspired by study by Lytras and Kurilovas (2014), which suggest that social media play an important role and contribute to the development of human capital. However, this study is still conceptual, and thus, based on the objectives of this research, the current stud y intended to fill the gap by testing this relationship in order to confirm such a conceptual study.

In addition, the findings are also consistent with similar research, which agreed the importance and effect of social media on human capital through several indirect ways. For instance, several studies found a positive relationship between social media and social capital (e.g. Su and Chan, 2017; Lambert, 2016; Liu et al., 2016; Raza et al., 2016; Ellison et al., 2014; Steinfield et al., 2008). For example, Su and Chan (2017) examined the effect of Facebook on social capital among university students in Hong Kong (with a sample size of 406). They found that the use of Facebook has a positive effect on both dimensions of social capital, which are 'bridging' and 'bonding'. In addition, Steinfield et al. (2008) examined the effect of social media on social capital, and he found a significant relationship between the intensity of use of Facebook and social capital. Furthermore, Raza et al. (2016) confirmed that social media is a source of social capital. While Ellison et al. (2014) suggested that social capital, through social

media usage, can be converted to other forms of capital, such as human capital. Correspondingly, Coleman (1988) claimed that human capital can be created by social capital. In parallel, Wu et al. (2008) examined the relationship between social capital and human capital, and they found a positive and significant relationship. Therefore, this study adopted social capital theory in order to interpret the relationship between social media and human capital and such adoption consistent with the Omar et al. (2016) study.

Additionally, from a similar logic, Qi and Chau (2016) tested the relationship between social media and organisation learning in their study, which has been conducted through an online survey via "LinkedIn", with a sample size of 243, and they found a positive direct relationship between them. In addition, this study also found a direct positive impact of social media on knowledge creation.

On the other hand, Norozi et al. (2013), in their empirical study (conducted in the context of Iran's General Inspection Organisation, with a sample size of 392 employees), found that organisation learning has a direct positive impact on human capital. Whereas a study conducted by Mehralian et al. (2014) found a significant and positive relationship between knowledge creation and human capital.

As well as the above-mentioned studies, several other studies in the current literature agreed that social media usage plays an important role in supporting tacit knowledge (e.g. Panahi et al., 2012; Juárez-Ramírez et al., 2013; Panahi et al., 2013; Belay, 2014), whereas human capital is considered to be a tacit knowledge that is possessed by individuals (Iskhar and Mahdaoui, 2016). According to Kane (2017), there is a practical significance to focusing on knowledge management, as this could be considered one of the most influential in terms of social media on businesses. In this regard, social media

is predicted by McKinsey as having an impact on business equating to approximately $1.3 trillion, with the majority coming from productivity improvements amongst HC (Chui et al., 2012).

Therefore, it can be seen from the current literature and the above argument that social media plays an important role in supporting and increasing the human capital, and thus, this is in line with the current findings of this study. However, according to the best knowledge of the author, there is no empirical study which has examined such a relationship as yet.

6.6 The Influence of Knowledge Sharing (KSD and KSC) on Innovation (RQ3)

In consideration to the results garnered in line with knowledge-sharing effect, including both collection and donation in line with innovation, it can be seen that the findings provide validation for H5 (a, b), which suggests that innovation is positively and significantly influenced by knowledge-sharing. Such a significant relationship between knowledge sharing and innovation is consistent with most previous empirical studies (e.g. Alhaj, 2016; Al-husseini and Elbeltagi, 2015; Choi and Park, 2014; Hong et al., 2004; Alavi and Leidner, 2001).

When adopting the resource-based view of an organisation (Wernerfelt, 1984; Barney, 1991), knowledge may be identified as one of the most valuable resources possessed by an organisation (Grant, 1996). In this vein, it may be stated that innovation may be increased should employees be encouraged to partake in effective knowledge-sharing (e.g., Cummings, 2004; Lin, 2007a; Mesmer-Magnus & DeChurch, 2009). Furthermore, as noted in the work of Darroch (2005), the overall propensity of an organisation to achieve innovation ultimately rests on its capacity to demonstrate

knowledge resources management. Moreover, an organisation encouraging staff to share knowledge within and across its teams and businesses is well positioned to develop new ideas and accordingly benefit from new business opportunities, which ultimately enables innovation (Darroch & McNaughton, 2002; Akhavan & Hosseini, 2016). In mind of ensuring innovation can be efficiently achieved, a firm's knowledge needs to be the focus of sound management and promotion (Du Plessis, 2007). Furthermore, a firm that is able to manage its knowledge resources can then transition towards being an innovative entity (Darroch, 2005). In this regard, it is noted that knowledge-sharing presents a number of opportunities to expand on and exploit the position of a firm in terms of creating solutions so as to provide a business with the innovative that can result in achieving a competitive edge (Reid, 2003). As an example, in the empirical work conducted by Hong *et al.* (2004), a significant positive relationship was identified between KS and new product development. In addition, the study carried out by Lin (2007a) highlighted the belief that, when knowledge-donation is encouraged in the workplace, employees are then likely to participate in mind of changing knowledge into team or business knowledge, which in turn improves the wealth of knowledge possessed by the firm and ultimately facilitates the generation of new ideas whilst achieving new business opportunities and benefitting from innovation.

As has been emphasised through the knowledge-based view, knowledge is fundamental to organisations (Nonaka & Takeuchi, 1995; Nonaka & Toyama, 2005). Knowledge-sharing has become recognised as critical in regards innovation across firms (Spender, 1996; von Krogh *et al.*, 2012; Choi & Park, 2014), with knowledge-sharing centred on members communicating and sharing their explicit and tacit knowledge, which subsequently enables new knowledge to be created through knowledge-exchange, knowledge-donation, and knowledge-collection (Hooff & Weenen, 2004). In essence,

the objective of knowledge-donating is centred on the transition of knowledge from tacit to explicit, which is then possessed by all teams and the firm as a whole. Furthermore, gathering knowledge requires that people are interacted with, with knowledge sought out; this enhances the overall volume of knowledge possessed by the firm (Nonaka *et al.*, 2006; von Krogh *et al.*, 2012).

Knowledge access can prove pivotal to business members when striving to devise innovative solutions whilst partaking in innovation-related activities (Rodan & Galunic, 2004). Process and product innovation can be seen to overcome challenges and issues while also enhancing levels of performance (Cooper, 1998; Tsai, 2001). Moreover, innovation rests on the experience, knowledge and skills of value-creation (Skerlavaja *et al.*, 2010; Wang & Wang, 2012), with new knowledge recognised as being of the utmost value when striving to generate ideas for new products (Tsai, 2001). Such a knowledge-based view implies that businesses are required to demonstrate the generation of knowledge and, to a greater extent, KS (Alavi & Leidner, 2001). Owing to the fact knowledge is possessed by individuals, it then falls to such groups to share their knowledge across the firm; this enables problems to be solved and challenges overcome through new thought processes and new routines (Nonaka & Takeuchi, 1995; Nonaka *et al.*, 2006; Cheng, 2012). Importantly, upon the sharing and converting of knowledge through gathering and donating, collective learning is then achieved, which subsequently enhances the firm's overall volume of knowledge (Alavi & Leidner, 2001; Nonaka & Toyama, 2005; Lin, 2007). In this vein, the point is made that businesses encouraging a culture of KS amongst its employees are likely to be well-positioned to create new ideas resulting in process and product innovation, as recognised by various scholars in the field (Tsai, 2001; Dougherty *et al.*, 2002; Michael & Nawaz, 2008; Mehrabani & Shajari, 2012). Through the completion of knowledge-centred activities,

staff members are able to direct their knowledge in different ways, which ultimately facilitates the creation of new knowledge that may be adopted in mind of further innovation.

Encouraging and implementing KS amongst staff is viewed in the study of Supar (2006) as having the capacity to achieve enhanced performance and the generation of new opportunities directed towards innovation. The findings of the research show that employees working for SMEs are positive about sharing their experiences, expertise, information and notes, insights and skills, as this ultimately allows the firm to improve itself, which benefits all. SME-based employees are able to share their knowledge through various means, including conferences, forums, meetings, training programmes and seminars, all of which are valuable in increasing innovation (Supyuenyong *et al*., 2009).

Importantly, however, the above results are seen to stand in contrast with those established in the work of Jantunen (2005), in which the conclusion was drawn that the acquisition of knowledge and innovative performance are not significantly linked, with the findings of Ling & Nasurdin (2010) suggesting that knowledge-sharing is in no way linked with process and product innovation. Notably, the findings of both of these works are believed to be owing to the cultural differences in Malaysia, where cooperation and interaction between individuals is not commonplace. This provides further validation for the view that, in the context of the KSA, culture could be influential in the case of knowledge-sharing and innovation. However, the findings garnered in this work provide support for the researches carried out by Leung (2010) and Cheng (2012), both of which implied that knowledge-sharing practices across a firm are useful in allowing staff to consider different ideas that could ultimately enhance learning performance, which ultimately influences innovation. Furthermore, the results

garnered provide validation for the study of Ferraresi *et al*. (2012), who posited the view that knowledge-sharing processes, including gathering, sharing and utilising, could improve innovation through the firm's strategic position. This stance is also echoed by other scholars in the field, suggesting that innovation stems from people garnering existing knowledge, which is then communicated across the whole firm (Stata, 1989; Cohen & Levinthal, 1990; Nonaka, 1991; Yli-Renko *et al*. 2001; Hall & Andriani, 2003; Jiménez-Jiménez & Sanz-Valle, 2011).

6.7 The Relationship between Human Capital and Innovation (RQ3)

The link recognised between innovation and human capital has been the focus of much attention, both empirical and theoretical, when considering the first frameworks pertaining to endogenous growth (Romer, 1990; Aghion & Howitt, 1998; Barro, 1999). With regard to the findings of the current study on the impact of human capital on innovation, the results supported H6, which indicated that the HC has a direct positive effect on the innovation. This can be explained in line with what Asheber (2016), Elsetouhi (2014) and Wu et al. (2008) hold the same view, emphasising that HC may be recognised as the key source of new ideas, which ultimately transform to become innovation. Employees' individual skills, when coupled with education and training, are useful in increasing levels of innovation, with such characteristics becoming positioned as innovative tools if applied across the firm. Innovation may be viewed as a purpose of new knowledge, with new information and knowledge able to be developed by employees as a result of education, training and experience, all of which add to their skillset and knowledge base. Such skills are fundamental amongst staff if innovation is to be successful. Furthermore, from an empirical standpoint, this findings is supported by other works that have sought to analyse the influences of human capital in line with innovation (Asheber, 2016; Mulugeta, 2015; Elsetouhi et al., 2015; De

Winne and Sels, 2010; Wu et al., 2008; Chen et al., 2006). For example, De Winne and Sels (2010), in their empirical study which was conducted at a small enterprise in Belgium, analysed the influence of human capital in line with innovation, with the findings highlighted innovation as being positively influenced by human capital. Furthermore, it was recognised that innovation stems from the overall capacity of an organisation to create, handle and maintain knowledge. Owing to the fact that knowledge is both created and possessed by employees, human resources, alongside HRM, are recognised as critical in innovation. In a comparable vein, Chen et al. (2006), in their study on Taiwanese manufacturing companies, looked at the role of intellectual capital on innovation performance. They established new product development performance as being positively influenced by human capital when the industry growth rate was seen to be greater. This study was also supported by the empirical study by Wu et al. (2008), which found a significant and positive impact of HC on innovation among 700 Taiwanese firms. Furthermore, the findings of this study are partially consistent with previous research, such as the study conducted by Asheber (2016) which investigated the direct and indirect effect of intellectual capital on innovations, looking at organisational capital as a mediator in the Ethiopian commercial banking sector, with a sample size of 235. The result of such an empirical study showed that human capital has a significant and positive direct effect on process innovation while having a non-significant effect on product innovation. However, the latter has an indirect significant effect through the mediating role of organisational capital. This is in contrast with the study conducted by Elsetouhi et al. (2015), which took a sample of 198 managers from various banks in Egypt and gathered relevant data, with the results subsequently suggesting product innovation as being both significantly and positively influenced by human capital, although process innovation was non-significantly

influenced in this regard, whilst the relationship between process innovation and human capital was seen to be entirely mediated by organisational capital.

The findings of this research, on the other hand, are inconsistent with other research. For instance, Subramaniam and Youndt (2005), who examined the relationship between human capital and innovation, found a significant negative relation between HC and innovations; and Mulugeta (2015), who found that human capital has a negative direct effect on product innovations and a negative, but statistically insignificant, effect on process and organisational innovations.

6.8 The Relationship between Social Media usage for Work Purposes and Innovation through Knowledge Sharing and Human Capital (RQ4)

With respect to the findings on the impact of social media usage for work purposes on innovation through the mediating effect of human capital and knowledge sharing, the results supported H7, which predicted that SMUWP positively and significantly affect innovation indirectly via human capital and knowledge sharing. This is consistent with the previous empirical and conceptual studies which revealed the importance and significant role of social media on innovation (e.g. Soto-Acosta et al., 2016; Zeng et al., 2015; Alhaj, 2016; Nguyen et al., 2015; Lam et al., 2016; Arvanitis et al., 2016; Piller et al., 2011; Kärkkäinen et al., 2010; Vătămănescu et al., 2016; Soto-Acosta et al., 2014). For example, Soto-Acosta et al. (2016) examined the relationship between e-business and organisational innovation in 175 Spanish manufacturing SMEs. The result showed that e-business has a direct positive effect on organisational innovation. Furthermore, in a similar context, an empirical study with a sample size of 535 SMEs, conducted by Soto-Acosta et al. (2014), found that web-knowledge sharing was positively related to innovation. In addition, Zeng et al. (2015), in their empirical study, found that Web 2.0 and organisational learning has a significant and positive effect on

innovativeness, and suggested that the social web has a crucial role in enhancing innovation.

In terms of the nature of social media usage for work purposes, this has been supported by the study of Nguyen et al. (2015), which examined the relationship between the strategic capability of social media and innovation. The results showed that acquiring knowledge from social media results in a positive effect on brand innovation.

It can be seen from the aforementioned empirical studies that the relationship was a direct positive affect. However, from the analysis, this study found an indirect significant relationship between SMUWP and innovation via knowledge sharing and human capital, while the direct relationship was non-significant. This can be justified through several aspects: first, there were differences in the nature of the concepts, as this study was concerned with SMUWP; second, there were differences in the context of the study, which in this study was Saudi Arabian SMEs; and third, both the adopted method and the sample size were different.

However, the mediating role of KS and HC on such relationships has been supported in several aspects, whether explicitly or tacitly. For example, Alhaj (2016) has examined the relationship between IT use and innovation through knowledge sharing in public and private sector oil companies in Libya, and he found an indirect positive relationship through knowledge sharing process as an important mediator. In addition, the nature of the usage of social media will be from a knowledge perspective, which has been discussed in the second chapter of this research. Moreover, according to KBV, knowledge plays an important role in achieving competitive advantages, as it is enhancing innovation. Several studies agree that social media is increasing knowledge sharing and human capital (Omar et al., 2016; Qi and Chau, 2016; Mei, 2016; Lytras

and Kurilovas, 2014), while others suggest that knowledge sharing and human capital is increasing innovation (Alavi and Leidner, 2001; Hong et al., 2004; Choi and Park, 2014; Al-husseini and Elbeltagi, 2014; Aghion and Howitt, 1998; Winne and Sels, 2010). HC may be recognised as the key underpinning behind new ideas generation, which then becomes innovation. Importantly, innovation can be seen to demonstrate an increase through the skillsets of individuals, as well as their learning and training through SMUWP, with such factors recognised as innovative instruments should they be applied at the firm level. Innovation may be seen to be a purpose of knowledge, with staff able to garner new knowledge and information through the application of social media, which ultimately improves the skillset of an employee whilst also improving their overall knowledge-sharing capacity. In this vein, there is a need for employees to be aware of and recognise the value of such skills, and to accordingly seek out entrepreneurial opportunities if they are to play a role in innovation (Elsetouhi, 2014).

However, the result of this study also showed that the link of such a relationship via knowledge sharing is stronger than human capital. This result has not reduced HC's value as a mediator between SMUWP and innovation, but such an indication can be illustrated due to the fact that education plays a vital role in the shaping of human capital (Becker, 1994). Moreover, the studies of Marvel & Lumpkin (2007) and Winne & Sels (2010) imply that, when employees have a good educational level, their firm may demonstrate a greater degree of innovation, with this viewpoint further highlighted in the study of Bontis (1998), who implies that employees' HC quality is fundamental in line with innovation. From the opposite standpoint, Freel (2000) indicated that a lack of qualified workers is regarded as one of the most important barriers to innovation. In this study, holding a high-school qualification (48%) was represented by the majority of the respondents, while a bachelor degree (32%) and postgraduate degree (17%)

accounted for far fewer respondents. However, the finding of the relationship via HC was positive and resulted in a full mediation as well. This can be seen as a strong indication, which reflects the crucial impact of SMUWP towards human capital, which can be complement for the shortage of the education level; hence, it can be said that SMUWP and human capital are complementary and not substitutes. This can be supported by what Dabbagh and Kitsantas (2012) and Rogers et al. (2007) suggested, which is that social media can be considered to be a learning platform.

Additionally, the development of human capital has more barriers in the context of SMEs compared with large enterprises, as a low budget plays a critical role in this regard. This is due to the fact that SMEs have a fear of the required costs which are caused by human capital development, such as training and learning costs. Such fear is compounded by employees' leak and their subsequent turnover when they receive enough training or learning paid by their organisations. In addition, the owners and managers of SMEs perceive that spending money on such development to be a waste of money (Panagiotakopoulos, 2011). Furthermore, the culture of some organisations is not supported enough in terms of human capital development. Therefore, considering social media is a free platform, it makes it more appealing to the public, including the workforce; hence, it serves as a major vehicle towards inculcating free learning and training to employees, thereby eliminating human capital development barriers. The point has been made in the work of Lopez-Garcia & Montero (2012) that the knowledge of a firm, which is known to have a direct and important link in regards innovation, may be seen to adopt the form of human capital. In this regard, human capital is seen to be fundamental when it comes to positioning an organisation to both absorb and distribute external knowledge. The data in the study were garnered from 769 manufacturing and service organisations during the period of 2003–2007 in the Spanish

context, with the study's empirical component stating that the capacity of an organisation to demonstrate innovation is facilitated by the share of skilled labour and the provision of on-the-job training, notably through the organisation's capacity to absorb knowledge.

Lastly, from the researcher's viewpoint, this is the first research attempt centred on analysing the link between SMUWP and innovation, with the inclusion of the mediating role adopted by KS and HC, as it is considered to be one of the main contributions of this research. However, the contributions will be explained in more detail in the next chapter with regard to both academic and practical implications.

7 CHAPTER SEVEN: CONCLUSION

7.1 Introduction

This chapter presents the conclusions drawn for this study. To begin with, the key findings garnered throughout the course of the work will be summarised, with the findings subsequently linked to the study objectives detailed in the first chapter. Subsequently, the chapter directs attention to discussing the research implications and contributions made, broken down into practical and theoretical. Lastly, study limitations along with recommendations for future work are detailed and linked in the final section.

7.2 Main Conclusion

SMEs are regarded as critical players in the development of many countries' economies (Al Saleh, 2012), with innovation considered to be one of the most important factors in enhancing SMEs' development and success (Soto-Acosta *et al*., 2017). In addition, according to KBV, along with that which has been revealed in the current literature of SMEs, knowledge is an important component for innovation (Popa *et al*., 2017; Brunswicker & Vanhaverbeke, 2015). Based on this sequence, there is a critical need for knowledge management systems to activate the dynamic of knowledge flow and accordingly enhance innovation, especially in the case of SMEs. In consideration to the limited understanding of the huge social media platforms, which has been raised in several areas of the current literature, this research attempted to fill the aforementioned gap and provide insight into the potential benefits of social media. However, the main important gap surrounds the debate that stands amongst both academics and businesses in terms of the value placed on the use of social media by employees of an organisation. The conflict in perceptions and standpoints prevents several organisations from

adopting social media. Some businesses have a fear of presenteeism (i.e. employees who are present at work but whose work falls below peak capacity), claiming that the use of social media is both distractive and unproductive. However, other businesses have come to acknowledge direct improvements in job performance, with this linked, in part, to employees being more satisfied that they have a greater work–life balance (O'Murchu *et al.*, 2004; Rooksby *et al.*, 2009; Shepherd, 2011, Moqbel *et al.*, 2013). However, the majority of these studies have not investigated such an issue from a quantitative perspective, especially in respect of knowledge.

Therefore, this study has examined the use of social media for work purposes by studying workers in Saudi Arabian SMEs, alongside its effect on innovation, through human capital and knowledge-sharing. In parallel, it has examined the perceived usefulness of SMU experience and PSS on SMUWP; this is to investigate the benefits underpinning the use of social media for work purposes from both sides, determined by those factors influencing on and influenced by the use of social media.

The significance of this notion was centred on providing an insight into the importance of social media and to accordingly investigate ways for small and medium-sized business owners or managers to aim to exploit the chance to avoid valueless social media usage by their members, whilst redirecting such usage towards work purposes and thus harnessing social media usages to acquire external knowledge and become more innovative. This has been covered by the research objectives, as addressed by this study. The objectives were set as follows:

1- To examine the impact of the perceived usefulness of the SMU experience and perceived supervisor support on the use of social media for work purposes.

2- To gain understanding of and insight into the impacts of SMU for work purposes on the knowledge-sharing process and human capital.

3- To explore the impact of the knowledge-sharing process and human capital on innovation within SMEs.

4- To investigate the impact of SMUWP on innovation through knowledge-sharing and human capital in SMEs.

Based on such objectives, the hypotheses of this research were addressed in Chapter 3 and achieved in the Results and Analysis section (Chapter 5), all of which supported and appeared to show significant and positive relationships. Furthermore, the research questions were also designed based on the research objectives and have been answered in Chapter 6. Finally, upon the completion of this chapter, it is understood that the research objectives have been achieved, which leads to the main aim of this study.

7.3   Contributions and Research Implications

The findings of this study are significant for a number of organisations; this is especially true for the SME community. In addition, it has also contributed to the current literature. This is will be discussed in the following sections, presenting both theoretical and practical implications of this research.

7.3.1   Theoretical Implications

Several contributions to the current literature have been provided by this research. This study is unique and different from other studies both in terms of single relationship and the structure of the comprehensive model. In regards the latter, the study provides empirical support for a comprehensive model of social media usage for work purposes, which presents an answer to the wide controversy raised in the previous literature towards whether or not the use of social media leads to added value for organisations.

Such a comprehensive model is divided into two parts: the first part has investigated the most critical factors seen to influence the adoption of SMUWP; the second part investigates the impact of SMUWP on innovation through the mediating effect of the knowledge-sharing process and human capital. The first part examined the impact of PSS and the perceived usefulness of social media usage experience on social media usage for work purposes; from the researcher's perspective, there is no study that has examined such relationships, whether simultaneously or separately, in terms of such relationships. Furthermore, as can be seen from the SM literature, there is only one empirical study, notably conducted by Charoensukmongkol (2014), that could be viewed as similar to the single relationship of PSS and social media. Such similarity can be viewed from the perspective of social media value in the workplace. That particular study found that the relationship between PSS and social media usage was negative, whereas this study, in converse, found a positive relationship. Although both studies have a different structure in terms of the nature of social media usage and different measurements of perceived supervisor support, the significance of such relationships are the same across both studies, which aim at presenting the acceptability of social media usage by organisations. Therefore, the positive relationship and the nature of the social media concept adopted by this study can contribute to changing various misunderstandings pertaining to the use of social media by the organisation's members, and contributes to the body of knowledge from the contradictory corner of such a relationship, as conducted in the work of Charoensukmongkol (2014).

In addition, from the other side, the second variable, which is the perceived usefulness of the SMU experience, is recognised as a mergence between the prior experience of social media and perceived usefulness. To the best knowledge of the researcher, this work presents the first study to develop such a concept. This contributes to extending

the UTUAT theory, which is an extension of TAM. Furthermore, it can be seen that prior experience can be more valid and accurate when considering the degree of perceived usefulness, which helps in minimising the gap between intention to use and actual usage.

With respect to the second part, this study has examined the relationship between social media usage and innovation through the mediating role of the KS process and HC. These relationships are considered dynamic of the knowledge flow within the organisation, which leads to innovation according to KBV. Social media tools may be information systems for the organisation, a source of external knowledge, and a learning platform. Employees can extract knowledge and learning through social media and accordingly store the knowledge in their mind. As a result, human capital is improved, with the knowledge-sharing process able to activate a knowledge cycle, thus both enhancing innovation. Therefore, this can contribute to KBV theory and provide an extension of the body of knowledge. This can also be reflected in consideration to the evidence that knowledge-acquisition, through social media usage, can enhance knowledge assets amongst SMEs by affecting HC and KS. To the best knowledge of the researcher, there are a very limited number of studies that gave examined the link between social media and knowledge-sharing, whilst no prior study has analysed the link between social media and human capital. Thus, this answers the question posed by Lytras & Kurilovas (2014), which centred on the need to examine such a relationships.

Furthermore, this study has made a further contribution to the body of knowledge through the extension of Social Capital Theory, which was adopted in order to interpret the rational links between relationships. This contributes to, extends and validates such

a theory from the online perspective by facilitating the weak ties through virtual social networks, which may be more active than in actual networks.

7.3.1.1   *Methodological Contribution*

This thesis has contributed to the body of knowledge through the methodological aspect, as discussed in the following. Firstly, it is considered a first attempt to have used the quantitative method in regards the targeted model, especially in the context of SMEs, which can provide a greater extent of reliability and accuracy, as well as objective results. This commonly decreases and reorganises a more complicated issue to a small number of variables. Furthermore, it has provided insight into the target phenomena, as the main problem of this research need to be understood within a wide sector.

Secondly, this thesis has applied systematic techniques under the probability sampling, which is known to make use of random numbers whilst ensuring variation across the sample so as to represent the population as a whole. Furthermore, in this thesis, the population number was known as it was utilised in a specific database, notably provided by The Ministry of Labour and Social Development in Saudi Arabia. Therefore, the systematic approach was applied in consideration to its capacity to provide a greater extent to avoid judgments, as it is considered the most effective and accurate technique of probability sampling.

Finally, two items were designed by this study and added to the measurement of SMU for work purposes in order to enhance the proposed meaning of such a variable and to be more compatible with the adopted definition.

7.3.2 Practical Implications

The present work has a number of different implications for organisations and practitioners. First, several organisations prevent the use of social media by their members in the workplace due to their misunderstanding of the value of social media, as they believe social media use will be a waste of time and cause a reduction in productivity (Moqbel, 2012). Therefore, the comprehensive model of SMUWP can contribute by revising such negative perceptions. Consequently, the second part of the model represents the vital role of social media in terms of supporting knowledge management and innovation, whereas the first part highlighted the suitable factors that can affect SMUWP adoption. Therefore, business owners or management can avoid the unproductive usage of social media by their employees and redirect such usage towards work purposes (e.g., individual learning and work-based problem-solving) and harness social media usage so as to acquire external knowledge and become more innovative.

Second, the need for information systems is critical and important for any organisation; however, this is recognised as one of the obstacles experienced by SMEs in comparison with larger enterprises. This is due to the limited budget, size and number of employees. In addition, SMEs suffer from the costs associated with HC development because they have a fear of employee leaks and turnover, especially when spending money on their training and learning. Therefore, social media is a free system incorporating a significant number of users, and, thus, can contribute to filling such gaps. As a result, SMEs require external knowledge that can be gathered (e.g., by experts, customers and similar co-workers) from external social capital (e.g., other professional enterprises, whether locally or internationally), customer capital, learning platforms and a variety of knowledge resources, especially as they are seeking innovative and competitive advantages to set them apart from large enterprises. Accordingly, leaders and managers

should consider exploiting such opportunities and redirecting the use of social media towards work purposes, rather than preventing them due to focusing on the general usage of social media for pleasure or non-work related activities, which they perceive as reducing work productivity. Therefore, this study contributes to SMEs by providing several opportunities of useful practices for their employees in terms of using social media usage. This enhances training and organisational learning. Moreover, it provides other solutions for the development of their human capital and knowledge assets.

7.4 Limitations and Future Research

In the present research, a number of different limitations are apparent, which require consideration. Primarily, despite the fact that the sample was considered to be adequate enough to warrant the completion of a statistical analysis (506 cases from SMEs in Saudi Arabia), it remains that the findings may have been enhanced further had the sample been larger. Importantly, the response rate was approximately 38%, which is recognised as owing to the fact that gathering data from various cities can prove problematic. Moreover, gathering data from various activities and two different sectors (public and private) resulted in a lengthier process. In consideration to such factors, the duration of data collection spanned approximately four months; with this in mind, alongside timescales and deadlines, a greater amount of time could not be spent gathering data. It is in consideration to this that the recommendation is made for future works to assign a greater period of time and resources towards the gathering of data, with the inclusion of a larger sample number.

Secondly, in line with the literature review carried out in this work, the comprehensive approach chosen and implemented in this research sought to encompass some of the most valuable and pertinent mediators inherent in the relationship between innovation

and SMUWP. However, some factors (such as the customer capital and problem-solving capacity), which may be recognised as valuable innovation-related predictors but which might not have been highlighted in the literature, might not have been taken into account in the present work. Accordingly, any additional factors recognised as possibly mediating the effect of SMUWP in line with innovation should be included in future works.

Third, this work has chosen to implement a post-positivistic approach with the application of quantitative questionnaires in order to facilitate the gathering of data. Importantly, however, this approach was not able to deliver insight into how factors, such as HC and KS process, are enhanced by SMUWP, nor was it able to explain the way in which such factors can lead to SMUWP adoption, such as PSS and perceived usefulness of the SMU experience. More wide-ranging and detailed explanations could be garnered should an interpretive approach be implemented, and so it may be advisable for future works to implement a qualitative-based approach, such as through the completion of interviews with SME owners or management, in mind of helping to expand the knowledge base on the ways in which firms view and consider social media use by employees.

Fourth, when taking into consideration the long-term effects commonly linked with SMUWP, it is recognised that a greater degree of insight into SMUWP indirect effects could be garnered through the application of a longitudinal work; this would provide a greater degree of accuracy when assessing the use and overall effectiveness of social media in the workplace.

Finally, this study adopts the context of SMEs in one country (notably a developing country). In addition, Saudi Arabia is recognised as a conservative country, which

segregates males and females in the workplace in the majority of organisations. This has led to various constraints and ultimately caused an imbalanced response rate between male and female workers, i.e. 80% male and 20% female. Therefore, future research could be adopted in a different country (e.g., a developed country) or a different culture so as to avoid such issues.

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9 Appendices:

Appendix A: The Covering Letter and Questionnaire

RESEARCH
WITH
PLYMOUTH
UNIVERSITY

School of Management
Plymouth Business School
University of Plymouth
Plymouth
United Kingdom

Research Title: THE IMPACT OF SOCIAL MEDIA USAGE ON INNOVATION IN SAUDI ARABIAN SMALL AND MEDIUM ENTERPRISES: THE ROLE OF KNOWLEDGE-SHARING AND HUMAN CAPITAL.

Dear Sir/Madam,

I am a PhD researcher at the University of Plymouth, investigating the impact of social media usage for work purposes on innovation through the mediating role of knowledge-sharing and human capital. Furthermore, I am investigating the extent to which supervisor support and perceived usefulness of social media usage impact the use of social media in the workplace.

Your organisation is part of a representative sample of Saudi Arabian firms selected to participate in this research. Your opinions and answers to the questions below will be highly valued. It is expected that your cooperation, in addition to enabling the realisation of the study's objectives, will allow your firm to be more innovative. In this respect, I would be most grateful if you could aid my research by completing a questionnaire by clicking on the link below. The completion of the questionnaire takes an estimated 8–12 minutes. I intend to begin my analysis on January 15, 2017; hence, I would be very appreciative if you could complete the questionnaire by this date. Note: if you experience any difficulties or have any questions, please contact me on the address below.

Please be assured that the information provided within the questionnaire will be treated as STRICTLY CONFIDENTIAL, and is bound to respect the university's Code of Ethics. No individual data will be disclosed to any external party. In addition, this research will be used for academic purposes only. I am more than willing to send you a free copy of the summary of this report if you so indicate by providing your company name and address in the space provided at the end of the questionnaire. I also would like to express that your participation in this survey is completely voluntary and, as such, you are free to withdraw your participation from this study at any time before you complete the survey; however, you cannot withdraw following the analysis of January 15, 2017.

Thank you for your time and cooperation.

Yours Sincerely,

Omar Alghamdi
University of Plymouth
School of Management
E-mail: omar.Alghamdi@plymouth.ac.uk

If you agree to participate in this survey, Please read and tick the following box:

The researcher has given me my own copy of the information sheet. I have read and understood the information, and the sheet clarifies the nature of the research and what I will be asked to do as a participant. I understand that the research is for a PhD student project and that the confidentiality of the information I provide will be safeguarded unless subject to any legal requirements.

I agree to take part as a participant in this research, and I understand that I am free to withdraw at any time before the analysis of January 15, 2017, without giving any reason and without detriment to myself.

☐

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PART 1: SOCIAL MEDIA USAGE

Please indicate the extent to which each of the following perception statements can be described in your organisation (Please circle the appropriate number using the following scale).

1=Strongly disagree(SD)	2= Disagree(D)	3= Neutral(N)	4= Agree(A)	5=Strongly Agree(SA)		
A. Social Media Usage for Work Purposes (SMU_WP)						
No.	**Items**	**(SD)**	**(D)**	**(N)**	**(A)**	**(SA)**
1	I frequently use social media for work purposes.	1	2	3	4	5
2	I regularly use social media to maintain and strengthen communication with colleagues in my work.	1	2	3	4	5
3	I often use social media to obtain work-related information and knowledge.	1	2	3	4	5
4	I often use social media to solve problems related to work.	1	2	3	4	5
5	I usually use social media to improve my work experiences and skills.	1	2	3	4	5
B. Perceived Usefulness of SMU experience (PUSE)						
6	The advice I receive from other people using social media has increased my understanding.	1	2	3	4	5
7	The advice I receive from other people in using social media has increased my knowledge.	1	2	3	4	5
8	The advice I receive from other people in using social media allows me to complete similar tasks more efficiently.	1	2	3	4	5
9	The advice I receive from other people using social media allows me to improve the quality of similar work.	1	2	3	4	5
10	The advice I receive from other people using social media allows me to conduct similar tasks with greater independence.	1	2	3	4	5
C. Perceived Supervisor Support (PSS)						
11	Our supervisor continuously encourages us to use social media for work purposes.	1	2	3	4	5
12	Our supervisor clearly advocates the use of social media for work purposes.	1	2	3	4	5
13	Our supervisor continuously refers to the importance of using social media to enhance my work activities.	1	2	3	4	5
14	Our supervisor believes that there are true merits from using social media.	1	2	3	4	5

PART 2: KNOWLEDGE SHARING

Please indicate the extent to which each of the following statements can be described in your organisation (Please circle the appropriate number using the following scale).

1=Strongly disagree(SD)	2= Disagree(D)	3= Neutral(N)	4= Agree(A)	5=Strongly Agree(SA)				
A. Knowledge-Sharing (KSC, KSD)								
No.	Items			(SD)	(D)	(N)	(A)	(SA)
	KSD							
15	Knowledge-sharing amongst colleagues is considered normal in my organisation.			1	2	3	4	5
16	When I have learned something new, I tell my colleagues about it.			1	2	3	4	5
17	When my colleagues have learned something new, they tell me about it.			1	2	3	4	5
18	I share the information I have with colleagues in my organisation.			1	2	3	4	5
	KSC							
19	Colleagues in my organisation share knowledge with me when I ask them to.			1	2	3	4	5
20	I share my skills with colleagues when they ask for it.			1	2	3	4	5
21	Colleagues in my organisation share their skills with me when I ask them to.			1	2	3	4	5
B. HUMAN CAPITAL (HC)								
22	The knowledge and competence of our employees is of a high level.			1	2	3	4	5
23	The average educational level of workforce is high.			1	2	3	4	5
24	The firm supports our employees by constantly investing their skills and education.			1	2	3	4	5
25	Employees would share their creativity with their colleagues.			1	2	3	4	5
C. INNOVATION (INN)								
26	The rate of introduction of new products or services in the organisation has grown rapidly in the last five years.			1	2	3	4	5
27	The rate of introduction of new production methods or services rendered in the organisation has grown rapidly in the last five years.			1	2	3	4	5
28	In comparison to its competitors, my organisation has become much more innovative in the last five years.			1	2	3	4	5

PART 3: Personal Information

Could you please provide the following information about you? (Please tick the appropriate).

	Gender	
1	Mall	
2	Female	

	Group Age	
1	20 - 29	
2	30 - 39	
3	40 - 49	
4	50 +	

	Education Level	
1	High School	
2	Diploma/Bachelor	
3	Master/PhD	
4	Other	

	Organisation sector	
1	public	
2	private	

	Type of organisation activity	
1	Services	
2	industrial	
3	Commercial	
4	Construction	
5	Others (……………..)	

	Number of employees	
1	(1 to 49)	
2	(50 to 99)	
3	(100 to 199)	
4	200 +	

	Your Experience of social media usage	
1	Year or Less	
2	1–3 years	
3	3–7 years	
4	7+	

	What kind of social media do you usually use?	
1	Professional (i.e.Wiki, LinkedIn,…etc.).	
2	Non-professional (i.e. Facebook, Twitter, YouTube…etc.).	
3	Both.	

Organization name (Optional)...
Email address..

THANK YOU FOR YOUR TIME AND CONSIDERATION!

Appendix B: The Ethical Approval

**RESEARCH
WITH
PLYMOUTH
UNIVERSITY**

Ref: FREC1516.50
Date: 10 November, 2016

Dear Omar,

Ethical Approval Application No: FREC1516.50
Title: THE IMPACT OF SOCIAL MEDIA USAGE ON INNOVATION IN SAUDI ARABIAN SMEs: THE
ROLE OF HUMAN CAPITAL AND KNOWLEDGE SHARING.

The Faculty Research Ethics Committee has considered the ethical approval form and is
fully satisfied that the project complies with Plymouth University's ethical standards for
research involving human participants.

Approval is for the duration of the project. However, please resubmit your application to the
committee if the information provided in the form alters or is likely to alter significantly.

We would like to wish you good luck with your research project.

Yours sincerely

(Sent as email attachment)

Dr James Benhin
Chair
Faculty Research Ethics Committee
Faculty of Business

Faculty of Business   T   +44 (0) 1752 585540
University of Plymouth   F   +44 (0) 1752 585715
Drake Circus   W   www.plymouth.ac.uk
Plymouth
Devon PL4 8AA United Kingdom

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Appendix C: Table for Non-response Bias Test

	Levene's Test for Equality of Variances		t-test for Equality of Means	
Independent Samples Test				
	F	**Sig.**	**Sig. (2-tailed)**	**Mean Difference**
SMU1	1.330	.252	.099	-.360
			.099	-.360
SMU2	1.153	.285	.561	-.120
			.561	-.120
SMU4	.907	.343	.849	-.040
			.849	-.040
PUSE3	1.073	.303	.546	-.140
			.546	-.140
PUSE4	.204	.653	.870	-.040
			.870	-.040
PSS2	.281	.597	.502	.160
			.502	.160
PSS4	.528	.469	.142	.300
			.142	.300
KSD1	.098	.755	.304	.240
			.304	.240
KSC2	1.193	.277	.186	-.320
			.186	-.320
KSD4	.023	.881	.703	-.100
			.703	-.100
HC1	2.127	.148	.224	-.300
			.224	-.300
HC4	2.153	.145	.223	-.300
			.223	-.300
INN1	.132	.718	.332	.240
			.332	240
INN2	.152	.698	.745	-.080
			.745	-.080
INN3	.464	.498	.206	.320
			.206	.320

Appendix D: Table for Common methods Bias Test.
(Harman's one-factor test)

Total Variance Explained						
Componen t	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.763	30.161	30.161	11.763	30.161	30.161
2	2.081	5.337	35.498			
3	1.960	5.026	40.524			
4	1.612	4.132	44.656			
5	1.299	3.331	47.987			
6	1.236	3.170	51.157			
7	1.165	2.988	54.145			
8	1.092	2.799	56.944			
9	1.065	2.732	59.676			
10	.970	2.488	62.164			
11	.938	2.406	64.570			
12	.887	2.275	66.845			
13	.858	2.201	69.046			
14	.843	2.162	71.208			
15	.791	2.027	73.235			
16	.758	1.944	75.179			
17	.736	1.886	77.065			
18	.683	1.750	78.816			
19	.648	1.661	80.477			
20	.608	1.558	82.035			
21	.579	1.484	83.518			
22	.551	1.413	84.931			
23	.535	1.371	86.302			
24	.521	1.335	87.637			
25	.480	1.232	88.869			
26	.463	1.187	90.056			
27	.450	1.153	91.208			
28	.438	1.123	92.332			
29	.394	1.011	93.342			
30	.383	.981	94.323			
31	.371	.952	95.275			
32	.357	.915	96.191			
33	.315	.807	96.998			
34	.303	.776	97.774			
35	.274	.704	98.478			

36	.242	.622	99.100			
37	.187	.478	99.578			
38	.132	.338	99.916			
39	.033	.084	100.000			
Extraction Method: Principal Component Analysis.						

Appendix E: Sample Size (Survey Monkey Calculator)

Sample Size Calculator

How many people do you need to take your survey? Even if you're a statistician, determining survey sample size can be tough.

Want to know how to calculate it? Our sample size calculator makes it easy. Here's everything you need to know about getting the right number of responses for your survey.

Calculate Your Sample Size:

⊘ Population Size:	1624000
⊘ Confidence Level (%):	95 ▾
⊘ Margin of Error (%):	5

Sample Size:

CALCULATE

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