THE UNIVERSITY OF HULL

The Impact of Organisational Culture and Knowledge Creation Process on Organisational Creativity and Performance in Knowledge-Intensive Banks

Being a Thesis submitted for the Degree of

Doctor of Philosophy (PhD) in Management

at the University of Hull

by

Abdullah Fahad Al Mulhim

MSc Marketing Management, University of Wolverhampton, UK
BSc General Commerce, University of Southern Queensland, Australia

September 2017

DEDICATION

THIS WORK IS DEDICATED TO MY MOTHER AND FATHER,

WITHOUT THEIR SUPPORT THIS WORK WOULD NOT HAVE BEEN POSSIBLE

ACKNOWLEDGMENTS

First and foremost, I would like to thank the Almighty ALLAH, the most Gracious, and the most Merciful for giving me the blessings, strength, ability and courage to complete this endeavour successfully. Without His guidance and grace, this research would not have been finished.

This thesis would not have been possible without the help, support and encouragement of my supervisor Dr Ming Li (Lily). I am appreciative of her tolerance and the high level of freedom that she granted me. She has spent her precious time to discuss and to make valuable comments on all the stages of the study, from a prior model of the research, through the survey and the written work of this thesis. I likewise wish to thank my second supervisor, Dr Antonio Malfense Fierro, for his support and valuable guidance during my PhD journey.

My special thanks to the human resource heads in the Saudi banks for their help in the data collection. I would also like to thank every one of the respondents for giving their important time and data in this study. Without their co-operation, the thesis would not have been conceivable.

Last, but not least, I am likewise thankful to my parents, for their tremendous support throughout the time of my study. They have invested their energy, day and night, remaining next to me urging and rousing me to overcome obstructions and improve my performance.

Abdullah Fahad Al Mulhim

September 2017

ABSTRACT

Knowledge management (KM) has various implications for organisational performance and competitiveness. Proponents argue that knowledge creation (KC) is extremely important for the long-run progress of an organisation. However, previous research has not demonstrated the application of each of the socialisation, externalisation, combination and internalisation (SECI) conversion processes in approaches to the study of KC and performance in specific business situations. In particular, the banking sector, which is a knowledge-intensive industry. In addition, some researchers claimed that the SECI model was based on Japanese standards; so the validity of this model in different cultures is also questionable. Furthermore, there is a significant gap in the literature, in terms of lack of empirical evidence that KM makes a difference to organisational performance. To fill these gaps, this study utilises an integrated model that interconnects and analyses the relationship between organisational culture, knowledge creation processes and firm performance, and specifically the role of the KC process and creativity in this relationship. The emphasis is on knowledge creation process (KCP), such as socialisation, externalisation, combination and internalisation in the context of domestic banks operating in Saudi Arabia.

This study adopts a quantitative research method through a case study approach to classify and examine the proposed model. A stratified random sample was drawn from 32 branches of two knowledge-intensive commercial banks in Saudi Arabia. Two hundred and fourteen self-administered questionnaires were collected to analyse the impact of organisational culture and the knowledge creation process on organisational creativity and performance. The survey data were examined by confirmatory factor analysis (CFA) and regression analysis. CFA revealed a decent model fit. The results confirmed that the organisational culture, which comprises trust, collaboration and learning factors, is observed to be an influential empowering agent. The results suggest KCP mediates the relationship between organisational culture and creativity, and of creativity mediates the relationship between KCP and firm performance. The internalisation process had the strongest impact on creativity and combination had an insignificant effect. In addition, the findings showed socialisation as a key antecedent for the exchange of tacit knowledge (TK) in the Saudi banks considered and the regression results indicated that the internalisation process helped Saudi banks to internalise explicit knowledge (EK) into TK during KCP. Consequently, this study supports the applicability of the SECI model in a new cross-cultural context and makes an important contribution to the existing literature by empirically investigating the relationship between organisational culture, KCP, creativity and firm performance. The findings not only provide a basis for further research in the field, but also have implications for chiefs at Saudi banks looking for management knowledge.

TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

LIST OF ACRONYMS

AGFI	-	Adjusted Goodness of Fit Index.
AIC	-	Akaike Information Criterion.
AMOS	-	Analysis of Moment Structures.
AVE	-	Average Variance Extracted.
β	-	Beta.
BCC	-	Browne Cudeck Criterion.
BOF	-	Badness of Fit.
CC	-	Collaboration.
CFA	-	Confirmatory Factor Analysis.
CFI	-	Comparative Fit Index.
CL	-	Learning.
CMV	-	Common Method Variance.
CR	-	Critical Ratio.
CR	-	Composite Reliability.
CT	-	Trust.
CV	-	Convergent Validity.
DF	-	Degrees of Freedom.
DV	-	Discriminant Validity.
DV	-	Dependent Variable.
E	-	Error Term.
ECVI	-	Expected Cross-Validation Index.
EFA	-	Exploratory Factor Analysis.
EK	-	Explicit Knowledge.
F	-	Factor Loadings.
FA	-	Factor Analysis.
GDP	-	Gross Domestic Product.
GFI	-	Goodness of Fit Index.
HUBS	-	Hull University Business School.
IFI	-	Incremental Fit Index.
IV	-	Independent Variable.
KBV	-	Knowledge-Based View.
KCC	-	Combination.

KCE	-	Externalisation.
KCI	-	Internalisation.
KCP	-	Knowledge Creation Process.
KCS	-	Socialisation.
KM	-	Knowledge Management.
KME	-	Knowledge Management Enablers.
KMS	-	Knowledge Management System.
LV	-	Latent Variable.
M	-	Mean.
MLE	-	Maximum Likelihood Estimation.
N	-	Sample Size.
NCB	-	National Commercial Bank (SA).
NFI	-	Normed Fit Index.
NPD	-	New Product Development.
OC	-	Organisational Culture.
OC	-	Organisational Creativity.
OLS	-	Ordinary Least Squares.
OP	-	Organisational Performance.
OPE	-	Organisational Performance (Efficiency).
OPG	-	Organisational Performance (Growth).
OPP	-	Organisational Performance (Profit).
PCFI	-	Parsimony Comparative Fit Index.
PNFI	-	Parsimony Normed Fit Index.
P-value	-	Probability.
R^2	-	Coefficient of Determination.
RB	-	Riyadh Bank (SA).
RBV	-	Resource-Based View.
RFI	-	Relative Fit Index.
RMR	-	Root Mean Square Residual.
RMSEA	-	Root Mean Square Error of Approximation.
RNI	-	Relative Non-Centrality Index.
SA	-	Saudi Arabia.
SAMA	-	Saudi Arabian Monetary Agency (SA central bank).
SD	-	Standard Deviation.

SE	-	Standard Error.
SEM	-	Structural Equation Modelling.
SIG	-	Significant.
SMC	-	Squared Multiple Correlations.
SPSS	-	Statistical Package for Social Sciences.
TK	-	Tacit Knowledge.
TLI	-	Tucker-Lewis Coefficient Index.
TLI	-	Tucker–Lewis Index.
UK	-	United Kingdom.
USD	-	United States Dollar.
VIF	-	Variance Inflation Factor.
X^2	-	Chi-Square.
ZPRED	-	Predicted Residuals Values.
ZREDID	-	Standardized Values.

CHAPTER 1: INTRODUCTION

1.1 Introduction

This chapter provides an introduction to the study by outlining the study as a whole and as such, establishes the basis for the succeeding chapters. This chapter is divided into nine sections. Sections 1.2 and 1.3 describe the research background followed by the background of Saudi Arabia. Sections 1.4 and 1.5 provide a statement of the problem and the research aims and objectives. Contributions of the study and research methodology are identified in section 1.6 and section 1.7. Section 1.8 provides definitions of key items. Finally, section 1.9 outline the thesis structure.

1.2 Research Background

A ‘knowledge-based economy’ is characterised as an economy that is equipped for knowledge generation, dissemination and utilises where knowledge is a key factor in development, the standard of living and employment (Foray & Lundvall, 1996; Kefela, 2010). Furthermore, human capital is the driver of creativity, innovation, and the era of new thoughts, with dependence on data and correspondence innovation (Kefela, 2010). In addition, there is a positive relationship and common connection between the "information society" and the "knowledge-based economy" (Becla, 2012; Zelazny, 2015). Hence, "knowledge" has become a basic prerequisite for improving the competitiveness of nations in the twenty-first century (Kefela, 2010). Theory, present worldwide practices, and experience attest that contemporary worldwide drivers of performance and growth are not quite the same as in the past. As never before in mankind's history, the economy is presently subject to the knowledge variable for development. To react emphatically to these advancements and guarantee improved competitiveness of the national economy, it is crucial for development plans to give consideration to knowledge and its use in all

sectors (Kefela, 2010). In Saudi Arabia (SA), the Eighth Development Plan emphasised major improvements that would be the source for a learning based economy. This involved beginning usage of the initial five-year plan of the National Science, Technology and Innovation Policy, the National Information and Communication Technology Plan, and the National Industrial Strategy (Ministry of Economy and Planning, 2005). The most recent development plan in the Kingdom of Saudi Arabia is the Ninth Development Plan. This plan embraces the drive to a knowledge-based economy through an emphasis on education, which spreads information, preparing for knowledge creation, saving, and exchange. Through these attempts, the plan tries to upgrade the comparative advantages of the economy, diversify it, expand it, and increase its efficiency. Also, the plan attempts to create employment opportunities for nationals (Ministry of Economy and Planning, 2010).

Knowledge is an essential source of organisational performance, competitiveness, and innovativeness, and it is believed to be the ultimate competitive advantage that establishments have (Huber, 1991; Drucker, 1993; Grant, 1996; Wiig, 1997). Consequently, awareness of knowledge creation (KC) and the conversion process is crucial, not just for national development, but for the progress and success of organisations. Creating knowledge requires the existence of groups of individuals who come up with new concepts or new ideas. Knowledge creation can be attained by observation, research, experiments and so on. KC begins with the demand for knowledge, followed by information acquisition, group learning, knowledge assessment and application, and finally, organisational KC (Firestone & McElroy, 2003). According to Nonaka (1994), KC and conversion are founded on two dimensions. The first shows that only people create knowledge. The second concerns the interaction between explicit knowledge (EK) and tacit knowledge (TK). The two dimensions structure the basis for explaining the four processes of the creation of knowledge: socialisation, externalisation,

combination and internalisation (Nonaka & Takeuchi, 1995). Nonaka and Takeuchi suggested that the importance that Western organisations have placed on handling knowledge has not been complemented by an understanding of how it is created. They claimed that knowledge is created by the continuous contact of TK and EK, including four modes of knowledge conversion. They illustrated this process by a matrix called the SECI model, which was defined as the engine of the entire KC process.

In recent years, knowledge management appeared as a distinct field of management science research (Nonaka & Konno, 2005; Kao et al., 2011; Rai, 2011) and it has been argued that organisations that can capture the knowledge implanted in their business can own the future (Lee & Choi, 2003). Numerous organisations have come to the conclusion that viable knowledge management (KM) is the best way to lever their central abilities to accomplish a sustainable competitive advantage (Grant, 1996; Davenport & Prusak, 1998; Bhatt, 2001; Arora, 2002; Foss & Pedersen, 2002). Organisations are occupied with KM to support business effectiveness, to expand the profitability and nature of their administration, and to provide imaginative solutions for their clients. KM is considered as a facilitator for understanding the function of knowledge in an organisation (Moffett et al., 2003).

Researchers and specialists have recently investigated the significance of the "delicate'' parts of KM (Hlupic et al., 2002; Guzman & Wilson, 2005). It is generally recognised that effective KM relies not only on information technology (IT) stages but more comprehensively on the social nature of an organisation and that innovation is just a facilitator and not the framework of KM (Carrillo et al., 2004). KM is more than just the stockpiling and controlling of data – it is a process that involves the responsibility to make and disperse knowledge across the organisation (Nonaka & Konno, 1998; Ardichvili et al., 2006). Successful KM demands that consideration is paid to the human and social

parts of an establishment, especially encounters with representatives and TK. KC can help organisations more than knowledge, since knowledge is not mainly about actualities but more about context-explicit features (Teece, 2000).

In the theory of knowledge creation (KC), organisational culture as an antecedent is not assumed, even though it is acclaimed that culture in different settings is a function of KC (Glisby & Holden, 2003; Haag et al., 2010; Andreeva & Ikhilchik, 2011). The researcher needs to look at the environment of both the culture and knowledge creation process in order to make the assumption that culture can be a key factor in knowledge creation. Despite recognition that successful knowledge management needs to have the right cultural factors (Janz & Prasarnphanich, 2003), knowledge management, transfer and sharing (Schumann & Tittmann, 2010) and knowledge management practices (Alavi et al., 2006), the association between organisational culture and specific knowledge management processes is not studied (Mueller, 2012). Nonaka's knowledge creation model provides a characteristic context in management and organisation studies that extensively covers the creation and sharing process (Von Krogh et al., 2000a; Earl, 2001). According to Holsapple and Joshi (2001), firms should create a suitable culture that inspires employees to create and share knowledge inside their firms. Based on the idea of care, the present study emphasises trust, collaboration and learning (Eppler & Sukowski, 2000; Lee & Choi, 2003). It views Care as an important enabler for managerial relations (Von Krogh, 1998). This study emphasises how organisational culture impacts each aspect of the knowledge creation process in the SECI model of Nonaka and Takeuchi (1995), affects organisational creativity and influences organisational performance. In order to test the mediating effect of both the knowledge creation process and organisational creativity, the procedure of Baron and Kenny (1986) is adopted as used by Lee and Choi (2003). For this purpose, the study involves a questionnaire-based survey from Saudi banks as a primary data collection technique, in order to test empirically the

effects of organisational culture and the knowledge creation process on organisational creativity and performance. There are two types of commercial banks in SA; domestic and joint venture banks. The study will not cover the joint venture banks because they are linked to foreign banks, in light of the fact that they are associated with foreign banks. The two oldest and largest domestic commercial banks will be covered in the present study. These banks are the Riyadh Bank and the National Commercial Bank (NCB).

1.3 Background of Saudi Arabia

Saudi Arabia (SA) is the birthplace of Islam. It has an oil-based economy and holds about 17% of the world's oil reserves, ranking as the main exporter of oil. The oil sector accounts for approximately 80% of budget incomes, 90% of export revenues, and 45% of the gross domestic product (GDP) (SAMA, 2015). The area of SA is 756,982 square miles (8.8 times as big as the UK). Table 1.1 shows the demographic indicators of Saudi Arabia in 2015. The total population in 2015 was 31.5 million, of which about 21 million were Saudi nationals, with a 2.02% growth rate. A total of 29.12% of the population was younger than 15 years, and 67.95% was 15–64 years, whereas only 2.93% was older than 65 years (Statistical Year Book, 2015).

Table 1.1: Demographic Indicators of Saudi Arabia

Item	**Indicator**
Total Estimated Population Size	31,521,418
Saudi population (males)	10,614,813
Saudi population (females)	10,515,147
Non-Saudi population (males)	7,076,815
Non-Saudi population (females)	3,314,643
Annual Population Growth Rate (%) Saudi	2.02
% Population Under 5 years	10.06
% Population Under 15 years	29.12
% Population 15-64 years	67.95
% Population from 65 & above	2.93

Source: CDSI (2015).

1.3.1 Economy of Saudi Arabia

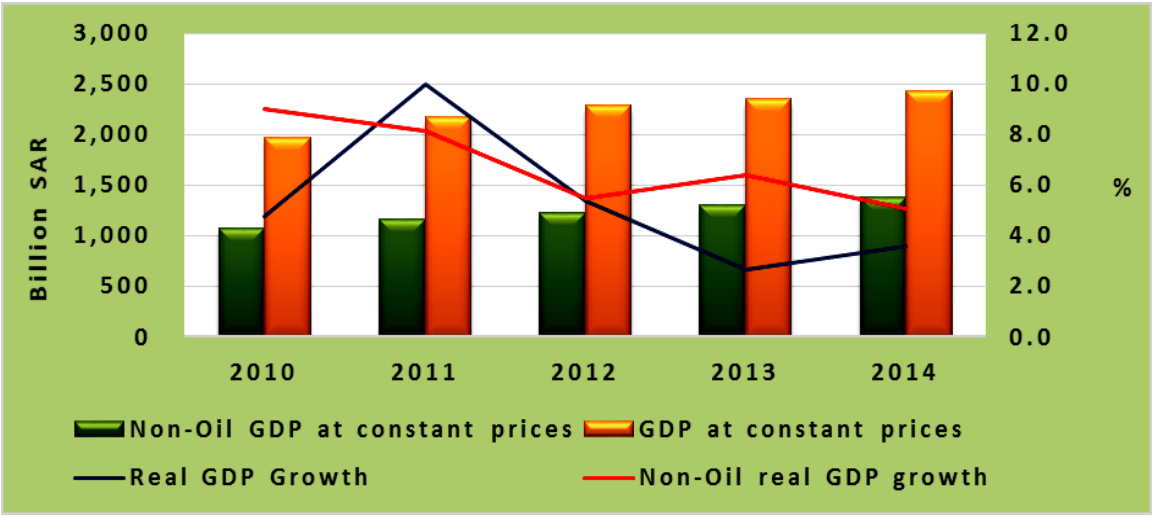
The Kingdom of Saudi Arabia has an oil-based economy. The oil reserves are the second biggest on the planet. The kingdom is the world's leading oil exporter and second largest producer. Saudi Arabia is inspiring the progress of the private sector to expand its economy and to employ more Saudi citizens. Expansion efforts are concentrating on telecommunications, power generation, the petrochemical sector and natural gas exploration (Kingdom of Saudi Arabia's vision for 2030). Table 1.2 summarises the main economic indicators of Saudi Arabia. The GDP growth has continued to be effective, with around 5.2 per cent increase over the past five years. The third row of Table 1.2 shows continuing growth in gross domestic product (GDP) in 2012, 2013, and 2014. Only, in 2015, the GDP declined due to falling oil prices. However, the second row of the same table shows falling GDP per capita due to the increase of the population of Saudi Arabia, not due to decrease in GDP (GDP per capita= GDP/population). (Figure 1.1), although general growth slowed down to 2.7 per cent in 2013 and 3.6 per cent in 2014. The non-oil sector continued to show a sustained increase, with an average of 6.8 per cent from 2009 to 2013 (SAMA, 2015).

Table 1.2: Economic Indicators of Saudi Arabia

Item	**2012**	**2013**	**2014**	**2015**
GDP per capita (USA$)	25,136	24,815	24,496	20,813
GDP (USA$ billion)	734	744	754	653
Economic Growth (GDP annual variation in %)	5.4	2.7	3.6	3.4
Consumption (annual variation in %)	11.7	3.2	6.1	6.7
Investment (annual variation in %)	5.0	5.6	7.5	-1.5
Industrial Production (annual variation in %)	4.9	0.2	3.1	3.3
Unemployment Rate (%)	5.6	5.6	5.8	5.7
Inflation Rate (annual variation in %)	2.9	3.5	2.7	2.2

Source: SAMA (2015).

Figure 1.1: Pattern of Real GDP Growth in Saudi Arabia

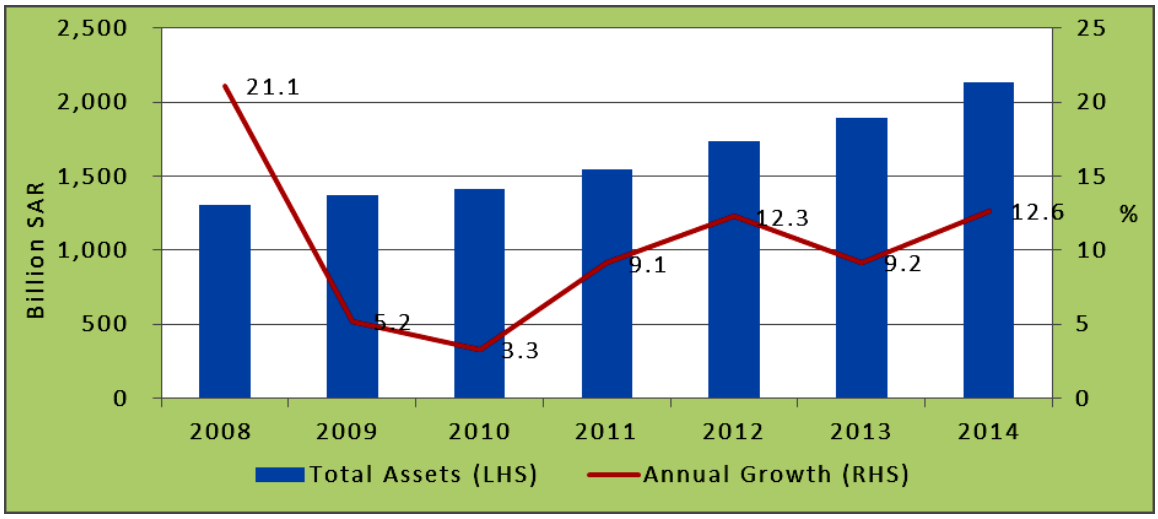


Source: SAMA (2015).

1.3.2 The Saudi Banking Sector

The banking sector, which is the largest part of the Saudi economy, is highly profitable, capitalised and liquid. Its outside exposure is also restricted in terms of both external borrowing and lending. These supportive factors combined with effective government policy enabled the Saudi banks to remain mainly insulated from world financial market instability in recent years. Following the 2007-09 financial crises, credit growth in Saudi Arabia originally slowed but picked up in following years without worsening banks' asset quality. Saudi banks attained high asset growth rates in recent years. During the five-year period 2010-2014, the asset base increased by 9.3 per cent to SAR 2.1 trillion, it equivalent to 75.6 per cent of GDP (Figure 1.2).

Figure 1.2: The Growth Pattern of Bank Assets in Saudi Arabia



Source: SAMA (2015).

Banks in Saudi Arabia work under the umbrella of the Saudi Arabia Monetary Agency (SAMA). SAMA was established in 1952, to performing a variety of functions in accordance with laws and regulations. There are 12 commercial banks working in Saudi Arabia: the National Commercial Bank (ALAHLI), the Saudi British Bank (SAAB), Saudi Investment Bank (SAIB), AlInma Bank, Banque Saudi Fransi (BSF), Riyadh Bank. Samba Financial Group (SAMBA), Saudi Hollandi Bank (SHB), Al Rajhi Bank, Arab National Bank (ANB), Bank Albilad, and Bank AlJazira (SAMA, 2014). The Saudi banks are divided into two sorts, the Islamic banks, and commercial banks. There are just four Islamic banks which follow Islamic Laws (Share'a) in their work, while other banks are ordinary commercial banks, although some of them have opened Islamic windows. The study will cover the most important and longest established two business banks in Saudi Arabia; the following is a brief profile of these banks.

Riyadh Bank is a Saudi Joint Stock Organisation formed in the Kingdom of SA in 1957, it is a retail banking establishment. Its significant capital base and many years of experience enable it to play the main part in every aspect of the Saudi economy, Riyadh Bank is a main agent and arranger of syndicated credits in oil, petrochemicals, power,

water sectors and the vast majority of the Kingdom's most remarkable infrastructure and construction projects. It offers its customers an extended system of more than 304 branches with 64 designated women's branches and 19 women's segments in different branches, and also 20 self-service electronic branches. It has a branch in London (UK) and offices in Houston (USA) and Singapore to meet the global account managing needs of its customers (SAMA, 2015).

The National Commercial Bank (NCB) is viewed as the biggest bank in Saudi Arabia and second in the Middle East region. The Bank started its business in 1953. It is a genuine trailblazer; NCB offered the first in SA charge cards, the first automated teller machines, the first investment funds plan for students, and the first elite branches for women. In 1979, NCB became the first Saudi bank to launch a mutual fund, and has led innovations in real estate and auto finance. From that point forward, it spearheaded the development of numerous Shariah-compliant financial services that now address the needs of more than 4 million clients. NCB has developed to become one of the biggest banks in the Arab world, with aggregate resources surpassing SAR 449 billion, and client deposits standing at SAR 323bill (SAMA, 2015).

1.4 Statement of the Problem

Guthrie (2001) claimed that these days, efficient firms know that for achieving improvement they should focus on intangible resources, as well as tangible properties. Hence, knowledge creation (KC) is a main element in their achievement (Shih et al., 2010). Numerous scholars have underlined the significance of knowledge creation process, and specifically the measurements of the SECI model, in enhancing firms' innovation performance (Nonaka & Takeuchi, 1995; Popadiuk & Choo, 2006; Ramirez & Kumpikaite, 2012; Sankowska, 2013). The use of Nonaka's SECI model has been quantitatively analysed in various business situations, such as the service industries as

well as the IT and manufacturing sectors (Li et al., 2009; Lopez-Saez et al., 2010). These studies proposed that the integration of all SECI processes increased the overall performance in business sectors. In spite of this essential literature on knowledge creation processes and organisational performance (OP), the association between these two ideas is still in dispute. Specifically, Schulze and Hoegl (2008) argue that two modes of the SECI model, namely combination and externalisation, do not add to the production of new thought. The present study will contribute to this argument through analysing the relationship between each of the four modes of KC and organisational creativity, which transforms knowledge into business. In addition, most of the above-mentioned studies did not demonstrate the usage of each SECI process in specific business situations. In particular, the banking sector, which is the main knowledge intensive sector with a huge impact on the worldwide economy (Miles, 2011). Consequently, banks are required to be efficient in KM in order to store and leverage knowledge (Chatzoglou & Vraimaki, 2009; Mizintseva & Gerbina, 2009). Furthermore, the few available studies have suggested that the function of the conversion processes differs in each country (Mizintseva & Gerbina, 2009). For instance, Michiko and Tokyo-Mitsubishi banks in Japan focused more on the socialisation process (Kubo et al., 2001), while Camel and Tiger banks in Malaysia focused more on the externalisation process (Ali & Ahmed, 2006). Therefore, it is crucial to conduct a comprehensive study to offer a clear understanding of the features of each conversion process (SECI) in the banking sector (Kubo et al., 2001; Mizintseva & Gerbina, 2009). In addition, the relationship between organisational culture and KC processes has received relatively little consideration, despite its high potential (Vicari & Troilo, 2000). Hence, an integrative research model is used which interrelates knowledge management factors (organisational culture, KC processes, organisational creativity and performance).

The process of KC has been examined largely in Western and Japanese organisations. Despite the widespread use of the SECI model, as proposed by Nonaka, no such research has been done in Saudi Arabia, which is strongly shaped by Islamic culture. In addition, the SECI model was derived from Japanese standards; so the validity of this model in different cultures is also questionable. Glisby and Holden (2003) argue that the four processes of SECI model are Japanese-specific; however, Weir and Hutchings (2005) argue that their study proves that the SECI model can be utilised in non-Japanese settings. Glisby and Holden (2003) propose that Japanese firms feel less stress from shareholders than their Western partners do, and in this way, they can more easily spend their time to do things the way they need to do. Weir and Hutchings (2005) state that Chinese firms carry out externalisation in almost the same way as Japanese organisations do. Nevertheless, they argue that in the Arab society, externalisation does not function in precisely the way it should, as indicated by the SECI model. Furthermore, notably, there is an obvious gap in the literature of empirical indication that KM makes a difference to organisational performance (Zack et al., 2009). In addition, according to Mueller (2012), the association between organisational culture and specific knowledge management processes is not studied. To fill these gaps, this study utilises an integrated model that interconnects and analyses the relationship between organisational culture, knowledge creation processes and organisational performance, and specifically the role of the KC process and creativity in this relationships. The emphasis is on KC processes, such as socialisation, externalisation, combination and internalisation in the context of domestic banks operating in Saudi Arabia. To clarify the relationship between KC and performance, organisational creativity (OC) is linked into the model (Lee & Choi, 2003).

Accordingly, the following research questions are addressed:

RQ1: How does organisational culture influence the organisational creativity of Saudi banks?

RQ2: How are knowledge creation processes linked to organisational performance in the Saudi banks?

1.5 Research Aims and Objectives

The aim of this study is to analyse the impact of organisational culture and knowledge creation process on organisational creativity and performance in knowledge-intensive banks. The emphasis is on KC processes, such as socialisation, externalisation, combination and internalisation in the context of domestic banks operating in Saudi Arabia. The following objectives are stated to assist in accomplishing the primary aims of this study:

1. To capture the relationship between the KC process and performance improvement in the Saudi banking sector.
2. To assess the validity of the knowledge creation model (SECI) in the Saudi social setting.
3. To help managers working in Saudi banks understand what impact knowledge creation has on their organisations.
4. To explore the overall relations among organisational culture, the KC processes, creativity and organisational performance improvement in the Saudi banking sector.
5. To suggest some inventive ideas and improvements for the top management in Saudi commercial banks to improve their KC process.
6. To explore the mediating effect of KCP on organisational creativity.
7. To explore the mediating effect of organisational creativity on organisational performance.

1.6 Contributions of the Study

The broad significance of this study originates from the significance of KM as a strategic tool as well as the possible influence of the KM process on overall managerial performance. Knowledge is one of the most critical intangible assets for an organisation in the current competitive environment (Nonaka, 1994; Hunt, 1995; Grant, 1996; Hunt & Morgan, 1996; Teece, 1998; Lee & Sukoco, 2007; Li et al., 2009), as KC processes have precise value inside an organisation (Nonaka, 1994; Nonaka & Konno, 1998; Nonaka et al., 2000). In addition, KC achieves long-run competitive advantage (Nevis et al., 1995; Davenport & Prusack, 1997; Chow et al., 2000; Gold et al., 2001; Lin & Lee, 2004; Hicks et al., 2007).

One of the new patterns in KM is emerging from its relationship with innovation. Innovation is the key element that can drive firms to create value and compete nationally and internationally. Knowledge creation is the principal asset in the innovation process. Whereas the availability of information helps to decrease difficulty in the innovation procedure, the making of new knowledge enables firms to deliver more innovations. Firms are capable to innovate more quickly and more positively by making and utilising knowledge quickly, and successfully (Cavusgil et al., 2003; Esterhuizen et al., 2012). Thus, information creation is a vital activity if organisations want to succeed and sustain development over the long term, by consistently innovating new services or products.

The process of knowledge management sets a new vision and variables for banks as ‘‘it drives innovation by capitalising on organisational intellect and experience’’ (Duffy, 1999:241). Thus, fostering and sustaining modern knowledge creation and sharing techniques are a vital factor in banking success (Ali & Ahmad, 2006). Empirical research is therefore needed to contextualise the knowledge creation phenomenon in various social settings in order to understand the managerial dynamics in the changed

situation of the knowledge economy. From this angle, several empirical studies have shown that researches are still in the process of gaining knowledge on this phenomenon. Nevertheless, knowledge can be gained by the exercise of a suitable methodology and robust analysis kept up, with close consideration to the particular meanings of the various ideas and empirical models. The banking sector in Saudi Arabia is generally more knowledge-intensive than other banks as it includes universal knowledge capital and heterogeneity as far as the developing countries are concerned (Akhtar, 2001). Consequently, this empirical study will help in understanding whether knowledge creation is a factor in developing countries or not and to what extent leadership is willing to create a knowledge culture in the Saudi Arabia banks.

The KM process in Saudi banks is still in its early stages. In response to this need, this study researches the crucial processes of KM being utilised in the commercial banks of Saudi Arabia to give a vision for bankers and strategists to recognise its significance. Knowledge is a vital strategic resource that significantly adds to advanced performance (Grant, 1996) and it necessary for all firms to create novel knowledge (Burns et al., 2014). Thus, KC is vital for a firm to guarantee its competitive advantage, which is why it has attracted many scholars (e.g. Nonaka, 1994; Von Krogh et al., 2012).

Organisational culture is the major element controlling an organisation's capability, effectiveness, survival and success (Schein, 2017). Accordingly, organisations should set a suitable culture for application of knowledge management (Corfield & Paton, 2016). The application of knowledge management will only be effective if organisational culture enhances it. For instance, the culture should encourage trust, learning and collaboration among employees (Gold et al., 2001). Furthermore, Gold et al. (2001) stated that a conducive culture is an important infrastructure, since in such a culture, individuals collaborate and share their thoughts and knowledge.

The Saudi setting is a distinctive culture for research, since the Muslim faith plays a large role in the people's lives (Hofstede, 1991). Moreover, attributes including the collectivist nature of Saudi culture may enhance the exchange of knowledge among individuals of the society. Accordingly, this study also aims to explore the influence of trust, learning and collaboration factors attributes on knowledge creation process within the context of Saudi banks. This will enable understanding of the appropriateness Saudi banks' culture for the knowledge creation process. The uniqueness of Saudi culture, where collectivist attributes are emphasised (Hofstede, 1991) is of great importance for the application of knowledge management processes, which might provide an opportunity to develop a necessary and demanding knowledge-based organisation. In addition, this study provides an important contribution through investigating how the relationship between KCP and organisational performance is moderated by organisational creativity. This contribution enriches knowledge on the performance effect of KC capability in the banking industry. This will also add to the literature on KM by focusing on Saudi Arabia rather than on Japan, North America and Western Europe and provide evidence as to the extent of the suitability of the SECI model in the Saudi Arabian social setting.

The importance of the present study for the banking sector in the environment of changing forms of the overall economy and the prevalent risk of financial disaster is, however, complicated. The bank financial crisis of 2007–2009 occurred due to deficiency of banking knowledge (Turner, 2009; Holland, 2010). In addition, Nonaka and Takeuchi (1995) proposed that KC is extremely important for the long-run success of an organisation. In addition, it has been claimed that knowledge infrastructures in the Arab states are available, but they are not being utilised efficiently relative to KM (El Emary et al., 2012). This creates the impression that KM is ignored and constrained; there is more work to be done as the bases and framework are absent. Likewise, there is a need for more analysis of knowledge management (KM) and organisational performance (OP)

in the Arab region and banking industry specifically, as the majority of the available literature is situated in the West.

The present study is important in that the outcomes provide managers with insight into how KM can enhance banks' performance. Furthermore, it is a novel study as it gives an in-depth investigation of knowledge management processes, not only in the context of a vital and knowledge-based industry (banks) but also within a country that is unique in terms of its socio-cultural setting (Saudi Arabia). The present study builds up a practical model that clarifies the impacts of organisational culture on creativity through KCP, which thus adds to performance. From a professional point of view, this study gives a chance to bank chiefs to better perceive the factors facilitating the upgrading of KC in their banks. In addition, this study adds to the literature on the theoretical system of the SECI model, its universal application and its effect on creativity and performance.

1.7 Research Methodology

According to Davis (1996) and Stevens (2002), the most important part of a research study is a suitable choice of methodology. The research philosophy of this study is derived from the positivist paradigm, which has various implications for the social sciences (Hughes, 1994: Saunders et al., 2015). Quantitative approaches are a key to positivist exploration, which endeavours to accurately carry out organised research strategies to find a single target reality (Carson et al., 2001: Saunders et al., 2015). The positivist paradigm, utilising a cross-sectional survey, was believed to be the most appropriate method for conducting this study. The population of this study is the employees of the Riyadh Bank and the National Commercial Bank. A sample of 214 respondents was selected randomly utilising Cochran's equation and using the maximum standard deviation value of the pilot study, as explained in Chapter 4.

The principal method of data collection was a questionnaire. A pilot study was conducted before the distribution of the final draft of the questionnaire, and some items were revised and modified in response to the feedback. Out of 262 questionnaires distributed by hand, 214 were returned. External and internal validity were established in this research. The reliability of the scales was evaluated through the Cronbach's Alpha and all the scales in the questionnaire were considered reliable. Confirmatory factor analyses (CFA) and regression analysis were utilised in examining the relationships among constructs, as explained in Chapters 5 and 6.

1.8 Key Definitions

Table 1.3 shows some salient definitions related to the study, found in the literature. Many definitions of knowledge are found in different articles as a valuable object for organisations. This study adopted the definition provided by Nonaka et al. (2000).

Table 1.3: Key Definitions

Term	Author	Definition
Knowledge	Nonaka et al. (2000)	A shared set of defensible true beliefs cantered on human interaction.
Knowledge Strategy	Kasten, (2006)	The set of rules and beliefs that form an organisation's management of knowledge.
Organisational Culture	Denison et al. (2006)	The motivating beliefs, values and attitudes that act as a basis for an organisation's management system.
Knowledge Management Process	Spende, (1996); Skyrme & Amidon, (1998); Nikbakht et al. (2010)	The KM process, including creating, utilising, exchanging, getting, recognising, sharing, misusing and holding knowledge.
Tacit Knowledge	Wilson, (2002)	Personal knowledge that is hard to communicate.
Explicit Knowledge	Wilson, (2002)	Knowledge that can be communicated easily.
Knowledge Creation	Shu et al. (2012)	A procedure that delivers, accumulates and coordinates new and current learning.
Socialisation	Nonaka & Takeuchi, (1995)	A process of sharing skills and, thus, creating tacit knowledge.
Externalisation	Nonaka & Takeuchi, (1995)	A process in which "creation" is activated by collective reflection or dialogue.
Combination	Nonaka & Takeuchi, (1995)	Includes combining various forms of explicit knowledge.
Internalisation	Nonaka & Takeuchi, (1995)	A process associated with learning by doing.
Organisational Creativity	Woodman et al. (1993); Vicari & Troilo, (2000)	Level of confidence that organisation is actually producing novel and useful ideas
Organisational Performance	Yang et al. (2004)	Strategic and capability-based accomplishments of an organisation which leads to the increase of its value.

1.9 Thesis Structure

This study contains eight chapters. The first provides the introduction, background, the Saudi national and banking context, the research problem, the aims and objectives, and contributions of the study. In addition, a short outline of the research methodology was presented, and key terms were defined.

Chapters 2 and 3 offer a broad review of the literature relevant to the field of KM, organisational culture, the KC process, organisational creativity and performance improvement. The focus is on KC processes, such as socialisation, externalisation, combination and internalisation. These two chapters aim to classify the subjects that have not been sufficiently examined by previous studies. Chapter 2 focus on some related literature on knowledge, knowledge management, and the application of the Nonaka and Takeuchi's model of knowledge creation (SECI), which is considered the basis for building an appropriate model for the banking system in Saudi Arabia. This leads to outlining the important variables that affect the research problem. A conceptual model is presented for the study and hypotheses for expected connections between the variables are proposed in Chapter 3.

Chapter 4 explains the methodology involved in this thesis. Detailed explanations of the research paradigm, the research design, the sample used for the collection of quantitative data, data screening and verification, assessment of the measurement scale and data analysis techniques are provided in this chapter.

Chapter 5 reports the outcomes derived from the descriptive analysis of the questionnaire survey of Saudi banks. Screening of the data is described, in order to confirm that it is appropriate for the statistical analysis. Validity and reliability results are presented. CFA is reported for all the research instruments to get their factor loadings and goodness of fit (GOF) measures are estimated in this chapter using the IBM AMOS v24.

Chapter 6 reports the outcomes of investigating the proposed hypotheses to address the research questions about the relationship between the selected dimensions of organisational culture, knowledge creation processes, creativity and organisational performance. It includes the results of an exploratory study that utilised correlations and multiple regression analyses in examining the relationships among constructs.

Chapter 7 summarises the empirical findings of relationships between the variables used in this study. It also provides a general discussion of the results from the quantitative analysis using CFA and multiple regression to test the research hypotheses and answer the research questions.

Chapter 8 concludes the study with a discussion of the key research results and highlights the theoretical and practical contributions. Limitations of the study are discussed and directions for future research are suggested.

CHAPTER 2: KNOWLEDGE MANAGEMENT AND THE APPLICATION OF THE SECI MODEL IN THE BANKING INDUSTRY

2.1 Introduction

Many researchers in the field of management studied knowledge management theory and found that it shows the level of competitive advantage of the organisation (Huber, 1991; Grant, 1996; Gold et al., 2001). Many definitions of knowledge are found in different articles as a valuable object for organisations. Moreover, knowledge could be achieved in the organisation from inside or outside sources (Li & Zhang, 2010). Some researchers divided knowledge into two types of knowledge, explicit knowledge, and implicit knowledge. Although culture was considered as one of the important factors that characterised knowledge management, some researchers found that it could strengthen or weaken the role of knowledge management (Seyedyousefi et al., 2016). DeLong (2004) argued that culture could affect the knowledge management process negatively, especially in the fields of knowledge sharing and development. This chapter will focus on some related literature on overview of knowledge, knowledge management, the knowledge conversion process (SECI), and the application of SECI model, which is considered the basis for building an appropriate model for the banking system in Saudi Arabia.

2.2 Overview of Knowledge

The accomplishment of a firm depends more in its abilities identified with knowledge than in its physical resources (Noh et al., 2014:1). Organisations sometimes fail to reach sustainable competitive advantage due to the way of managing and deploying their assets. These assets can be classified as tangible and intangible. Tangible assets such as capital, plant, inventory and equipment are considered essential assets, whereas intangible assets are considered less important in these organisations (Gyensare & Asare, 2012). Even

though these organisations place great emphasis on their tangible assets, they are unable to achieve competitive advantage. It is now becoming clearer that all organisations need a much wider variety of resources to compete in the existing competitive market. The number of organisations providing more weight to their intangible assets is increasing (Gyensare & Asare, 2012). To achieve sustainable competitive advantage, organisations need to learn how to manage their intangible assets, that is 'knowledge' and this procedure is known as knowledge management (KM). Knowledge is the most profitable asset in any organisation. It is the foundation of a firm's focused system and essential for an organisation's survival (Naserieh et al., 2012; Schmitz et al., 2014). The use of knowledge in management, education, and business literature suffers from five problems: haziness; incoherence; breadth; functionalism; and subjectivity (Alvesson & Karreman, 2001). Thus, these authors determined that knowledge is an ambiguous, loose and rich idea that prevents reduction to easy sets of divisions. In general, there are two separate types of knowledge that are widely acknowledged in KM, there are tacit and explicit knowledge, although other disciplines utilise different terms (Table 2.1).

Table 2.1: Knowledge Terms in Various Disciplines

Disciplines	**Knowledge- 'that'**	**Knowledge- 'how'**	**Sources**
Management	'Explicit knowledge'	'Tacit knowledge'	Nonaka and Takeuchi (1995)
Knowledge management	'Know-what'	'Know-how'	Whitehill (1997)
Sociology	'Explicit/symbolic'	'Tacit; encultured'	Collins (1993)
IT studies	'Knowledge as object'	'Knowledge as process'	Kakihara and Sørensen (2002)
Artificial intelligence	'Declarative knowledge'	'Procedural knowledge'	Sahdra and Thagard (2003)
Neuroscience	'Overt knowledge'	'Covert knowledge'	Gourlay (2004)

2.2.1 Data, Information and Knowledge

The concepts of knowledge, data and information are so interlinked that they can be organised in a single continuum with respect to the extent to which they define human involvement while processing the obvious reality at hand. Therefore, before analysing the issues in the spectrum of knowledge, it is significant to highlight the differences among information, data and knowledge (Tsoukas & Vladimirou, 2001). Data is based on facts, so it requires minimum human participation, whereas knowledge is based upon human perception and ideas, so it demands maximum judgement on certain issues or situations. As these judgments come from a human deep desire to understand, reorder and redesign the perception about they know and what they feel, this develops a new angle of vision or perception on a particulate problem (Pham, 2008). Whereas data consist of facts and numbers, information deals with data in context and after organising data and information in a meaningful way to give a vision about the issue, it becomes knowledge (Zack, 1999).

Wallace (2007) also supported this definition, defining data as a collection of facts about certain events that happened and noticed by people, information as a contextual explanation of data, which provides significance by analysing data in an explanatory framework and knowledge as information which connects different themes and presents a meaningful judgement. Knowledge comprises the familiarity that allows individuals through existing information and data to be aware of particular things, to distinguish how to initiate these things or how to do these things in a specific way. It comprises both information and data (Beijerse, 2000; Nonaka et al., 2000; Sanchez, 2003; Hicks et al., 2007; Grant & Grant, 2008; Fuller, 2016). Consequently, Davenport and Prusak (1998:5) stated that knowledge is "a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information".

Therefore, in businesses or financial institutes a distinction is made between data, information and knowledge. Sanchez (2003:5) also defined data as the presentation of facts on certain events that people notices or events that have great importance in an organisation. These facts are given certain meanings through the data comparison as information. Basically, knowledge consists of ideas and principles about fundamental relationships in an organisation that are present not only in documents and sources, but also in organisational routines, practices, procedures and standards (Wallace, 2007).

In short, data comprise lists of things, statistics and particular facts. After being organised in a cohesive and logical format for a precise cause, data become information. When information is managed, analysed and positioned in the framework, it converts into knowledge. Knowledge entails creating interpretations by recognising hidden trends, uncommon designs, and exclusions in the information and data. This is a complex and subtle process that requires a person to create value decisions grounded on previous familiarities and understanding of designs (Gandhi, 2004). However, the order of connection might also in be reversed if knowledge is to be converted into applied systems. Thus Tian et al. (2009) suggest, the stages of data becoming information, and information becoming knowledge occur in a cyclic pattern. They claim that when knowledge is expressed, spoken and organised, it grows into information which, when allocated a static image and usual understanding, becomes data. On the contrary, in their contribution, Alavi and Leidner (2001) assert that information becomes knowledge when it is properly managed in the thoughts of persons. Knowledge, therefore, becomes information when it is expressed and presented in the method of graphics, texts, or other symbolic methods.

2.2.2 Types of Knowledge

Knowledge has been categorised into two broad categories: (i) tacit knowledge (ii) explicit knowledge. Tacit knowledge is generated from local individuals' practices, experiences, reflections, internalisation or individual talent (Nonaka & Takeuchi, 1995). Explicit knowledge is denoted as "know-what" and is related to information, which is confirmed and then organised (Brown & Duguid 1998). It allows individuals to answer questions and guarantees that only vital knowledge is stockpiled, studied and rationalised. Moreover, Knowledge Management Strategy (KMS) handles this kind of knowledge, as an effective tool to enable the recovery, storage, and change of stored knowledge. Although this is valid, Brown and Duguid (1991), Bukowitz and Williams (1999), and Cook and Brown (1999), considered explicit knowledge less important, as it cannot support the creation of a steady competitive advantage. Table 2.2 shows the differences between tacit knowledge and explicit knowledge:

Table 2.2: Explicit against Tacit Knowledge with Respect to Features and Resources

	Explicit Knowledge (Documented)	**Tacit Knowledge (Know-how embedded in people)**
	Simply organised	Private
	Storable	Context-Specific
	Exchangeable	Difficult to formalise
	Easily expressed and shared	Hard to apprehend, connect and share
	Guides	Informal business processes and communication
	Policies and processes	Individual experiences
	Databases and reports	Historical understanding

Source: Serban & Luan (2002).

Overall, knowledge in organisations contains data on organisational behaviour, decision-making, leadership, motivation, innovation and group dynamics (Bartol et al., 2003). According to Jafari et al. (2009), there are seven layers of knowledge found in organisations; they include:

1. **Customer Knowledge:** It comprises understanding the essentials of an organisation's clientele, identifying unmet needs, and recognising new prospects to improve, knowledge-sharing relationships.
2. **Stakeholder Relationships:** It includes knowledge that designs key strategies to know organisational flow between suppliers, employees, shareholders etc.
3. **Business Environment Insights:** It includes systematic environmental perusal of governmental, financial, technological, social and environmental trends, and competitor analysis and market intelligence systems.
4. **Organisational Memory:** It clarifies knowledge sharing in best-practice records, online documents, directories of knowledge, processes and debate forums, and intranets.
5. **Knowledge in Processes:** It refers to the role of knowledge in business processes, management and decision-making.
6. **Knowledge in Products and Services:** It includes knowledge inserted into products, enclosing products with knowledge, e.g., user guides, and enhanced knowledge-intensive services.
7. **Knowledge in People:** It comprises knowledge-sharing fairs, training and education systems, innovation workshops and groups of knowledge practice.

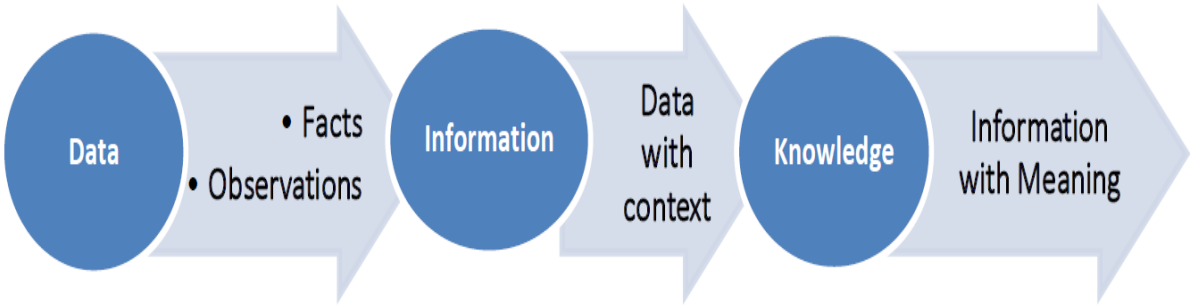
2.3 Knowledge Management

According to Schultze and Leidner (2002), knowledge management is defined as "the generation and acquisition, depiction, storage, transfer, conversion, application, and retention of organisational knowledge". Knowledge is seen as a critical variable for accomplishing and maintaining competitive advantage of organisation (Lee & Lan, 2011; Liu & Deng, 2015). However, knowledge can easily become out of date and futile if without appropriate management within the organisation (Karimi & Javanmard, 2014). Thus, it is essential for an organisation to build up an arrangement of procedures with a specific end goal, to better deal with their knowledge resources (OuYang, 2014).

There are six principles which should be considered in a knowledge strategy; they are knowledge distribution, knowledge exposure, knowledge transfer, knowledge collectivism, knowledge storing and knowledge exchange (Poufelt & Peretsen, 2016). In general, knowledge management is influenced by social situations because it takes social interactions among individuals into consideration (Sussman & Siegal, 2003). Moreover, the organisation can increase its productivity and stability through transferring knowledge. Botha et al. (2008) stated that it is a prerequisite to evaluate organisational capabilities, which include technology, culture and infrastructure, to enable knowledge management for best practices. A knowledge management system contains three aspects: people, information and technology. These aspects are characterised by a move from simple to complex knowledge. Generally, it is important that knowledge management should deal effectively with the above aspects (Barley & Kunda, 1992). Knowledge management follows three stages: adaptation, adoption and acceptance. It starts with data collection; data are then processed to convert them to information as structural data, which will be the basis for knowledge management. Although this is true, but knowledge is constructed

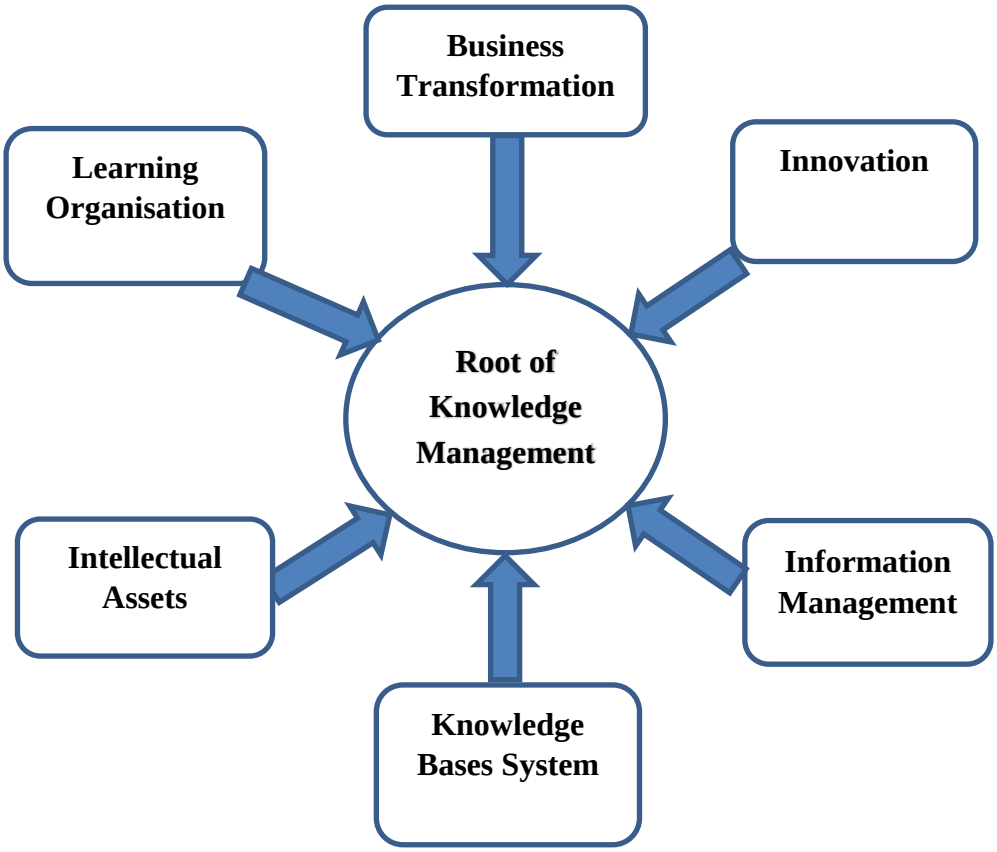
by individuals and it signifies their beliefs about essential relationships, so it is constrained to people (see Figure 2.1) (Thierauf, 1999).

Figure 2.1: From Data to Knowledge



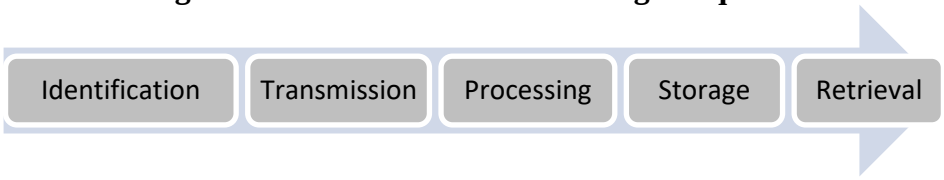
There are six sources for knowledge management, they are learning organisation, business transformation innovation, information management, knowledge-based system and intellectual assets (see Figure 2.2) (Suresh, 2016).

Figure 2.2: Roots of Knowledge Management



On the other hand, knowledge acquisition could consist of five phases (Nieminen, 2007) as shown in Figure 2.3.

Figure 2.3: The Process of Knowledge Acquisition



The first phase starts when new knowledge is recognised. The second phase, transmission, occurs when knowledge is transferred from one unit of the organisation to another. The processing phase is strongly dependent on the person(s) involved. Storage of knowledge, the fourth stage, is conducted by using appropriate storage methods and by disseminating it to relevant units. This is to enable the successful retrieval and utilisation of knowledge later on, i.e. the final stage.

There are a variety of methods and tools that enable storage of knowledge:

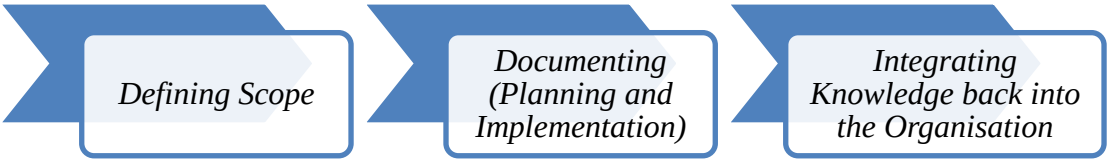
- Knowledge storage facility and relevant databases.
- Prepare and implement document management systems.
- Databases of employees (knowledge, experience, training, skills, learning, development, etc.).
- Literature, expert systems, data warehouse, yellow pages, among others.

New ideas are developed during knowledge creation, capturing and classification processes. These ideas need to be tested or authenticated at a later stage in order to determine their accuracy and value, to make sure that they are of greater value than the current ones. The process of evaluation of the new concepts will be based on the organisational goals and visions, while their value is evaluated according to the level of improvement in the organisational effectiveness and competitiveness. For this purpose,

the Balanced Scorecard instrument could be used, since it relates the knowledge perspective of the company with its learning/growth, customers, business processes and financial situation perspectives (Kaplan & Norton, 2000). On the other hand, if the new knowledge comes from experiments or observations, it needs to be analysed, explained and confirmed.

As explained by Ceptureanu and Ceptureanu (2010), knowledge acquisition can be defined as the transmission of valuable skill or a capability from a knowledge source to a knowledge repository. Knowledge sources include documents and human expertise among others while knowledge repositories include an intranet, organisational memory etc. Knowledge retention forms the major element of knowledge management; it is explained as the retention of the knowledge assets and the information in the organisation for a longer period of time, even when the employees of the organisation retire or leave. The understanding of the knowledge is important in forming the knowledge retention strategy for an organisation. Understanding can be in terms of comprehending which knowledge is at risk, which knowledge is important and what is required to retain the knowledge in the organisation. Based on the knowledge retention strategy, an organisation can devise reward structures, and take various initiatives such as interviews and mentoring, and also can utilise knowledge from people who leave or retire. The three stages of knowledge retention as defined by Levey (1997) are illustrated in Figure 2.4.

Figure 2.4: Stages of Knowledge Retention



Levey (1997) explains, to execute the three stages successfully it is critical to retain best practices, structure the knowledge retention process and document the retained knowledge. The effect of knowledge creation was researched in new product development (NPD) and the performance of engineering in different manufacturing firms in Malaysia by Ng and Jee (2013). The results revealed that knowledge creation acts as the primary factor for the success of NPD and also may lead to overall improvement in knowledge and economy, thus giving the direction for a nation to achieve the status of a high-income nation.

Eight knowledge management success factors were identified by Davenport and Prusak (1998) namely, (1) shared knowledge; (2) knowledge-friendly culture; (3) motivated workers who develop, share and use knowledge; (4) technology infrastructure; (5) organisational infrastructure; (6) balance of flexibility, evolution and ease of access to knowledge; (7) senior management support and commitment; and (8) means of knowledge transfer using various information technology infrastructure. There are five additional factors of success as given by Ryan and Prybutok (2001), which are (1) senior management leadership and commitment; (2) an open organisational culture; (3) employee involvement; (4) teamwork and (5) information systems infrastructure. Moffett et al. (2003) gave the most complete and inclusive list of success factors and recognised, ten important elements of successful knowledge management: (1) employee training; (2) employee involvement; (3) senior management leadership and commitment; (4) a friendly organisational culture; (5) employee empowerment; (6) trustworthy teamwork; (7) performance measurement; (8) information systems infrastructure; (9) knowledge structure and (10) benchmarking. However, there is no other framework apart from Moffett et al. (2003) that can give a comprehensive list for knowledge management by explaining important characteristics of knowledge management and their interrelationships. Although most of the studies identify significant success factors,

however they are narrow in scope (Lee & Choi, 2000; Chong, 2005). For instance, the majority of studies have not yet excluded organisational constraints as a significant factor that guarantees successful knowledge management implementation.

The general modes of knowledge management are knowledge creation, knowledge retention, knowledge transfer, and knowledge utilisation. To be able to survive and be more productive, organisations are able to transfer knowledge effectively from one unit to another. On the important role of knowledge sharing, researchers found that trust helps in relieving the negative effect of the perceived costs of sharing (Kankanhalli et al., 2005). According to Gupta and Sharma (2004), knowledge management is a significant factor that helps in achieving organisational objectives which include competitive advantage, individual performance improvement, innovation, organisation continuous improvement, integration, and sharing of lessons learnt. According to researchers, knowledge management practices in the organisations motivate different individuals and groups for knowledge sharing related to organisational insights, decreasing work redundancy, preserving intellectual capital through employees' organisation turnover, to harmonise with changing the market and decreasing the time required to train other employees (Thompson & Walsham, 2004). Information collection is considered as instrumental in knowledge management practices, but it is essential that this knowledge is evaluated using reliable sources.

Bontis et al. (2000) and Petty and Guthrie (2000) explained different approaches for evaluating knowledge management practices. Holsapple and Joshi (2002) defined knowledge evaluation in processes and products by utilisation of various techniques. One such technique is KP3, which means knowledge, product, process and performance. It is a method for knowledge assessment in the form of matrix description of the process and product knowledge leading to business activities. Another is Saaty's method (Saaty,

2003) for computing intangible assets. Ahn and Chang (2004) explained utilisation of the KP3 method to evaluate the impact of knowledge on performance in business. In addition, there are different evaluation approaches that support decisions on knowledge value in knowledge management, including the value chain score developed by Lev (1999). In this score, evaluation of indices is done by drawing nonfinancial matrices in three areas, namely, commerce, implementation and learning in relations to knowledge in the organisation. According to Yang (2004), there are different elements that are included as part of the knowledge management process such as knowledge creation, discovery, best practises, knowledge collection, understanding useful practise, knowledge sharing, adjustment and performance improvements. Overall, Darroch (2005) explained, in order to enhance organisational performance, it is important to utilise knowledge management that includes knowledge assets and infrastructures.

2.3.1 Knowledge Management in the Arab States

As indicated by Ozbilgin and Syed (2010) given the unique social setting of the Arab states, the Arab Club for Information and the Arab KM Society are two organisations that can encourage better KM inside the Arab region. They contend that the legislature in the Arab region needs to try to support the presentation of knowledge management in that area and that there is a need to address its beginning in the Arab locale (Ozbilgin & Syed, 2010). El Emary et al. (2012) study knowledge management in Dubai: particularly, the factors required for KM to be effective. The outcomes of the analysis demonstrate that KM in Dubai needs the following prerequisites: a data innovation foundation; a focal memory and aggregate personality of individuals from the association; multi-dimensional authoritative structures; shared learning space/TK; and *dialogue* in human groups. In addition, knowledge infrastructures in Dubai exist but they are not being utilised efficiently in relation to KM. This creates the impression that KM is ignored and

constrained; there is more work to be done as the bases and framework are absent. Likewise, there ought to be more research on knowledge management (KM) and organisational performance (OP) in the Arab region and the banking industry specifically, as the majority of the accessible literature is situated in the West.

2.3.2 Physical Environment

The organisation's physical environment is recognised as a facilitator for knowledge sharing and capture. The physical environment includes the design of buildings, location, size, number, type of offices, and nature of meeting rooms, which play an effective role in knowledge sharing and capture in an organisation (Becerra-Fernandez et al., 2004). For instance, most employees gain more knowledge from others through informal conversation in cafeterias, lunch breaks and office corridors than office manuals and formal face-to-face communication. In this regard, executive management have to make arrangements for such places, e.g. open workplaces and chambers in which exchange of informal knowledge among employees can succeed (Stewart, 2000; Becerra-Fernandez et al., 2004).

Consequently, focus on research conducted on knowledge management inside public organisations, and within banks in specific, found that knowledge management practices inside organisations might be classified as exploitation and exploration (Zack, 2002; Ichijo, 2006). Knowledge exploitation occurs with the transfer and spread of new knowledge. On the other hand, the process of knowledge exploration supports the creation of new knowledge (Curado, 2008). In the bank environment, the knowledge management system is the 'source of connecting people, processes, and technology' (Alrawi & Elkhatib, 2009). The banking sector depends heavily on the knowledge management system and often benefits from establishing a centralised communication system based

on knowledge management systems and techniques (Kridan & Goulding, 2006; Mizintseva & Gerbina, 2009).

There are two distinct themes in literature in knowledge management within banks. The first theme focuses on the organisational culture as the most influential element of the knowledge creation process. The second theme highlights the way in which an individual, a group, an organisation, on an industry, create, share and disseminate knowledge (Nonaka, 1994; Nonaka & Takeuchi, 1995; Lee & Choi, 2003; Nonaka et al., 2006; Nematizade & Branch, 2012; Nejatian et al., 2013). Henceforth, this study is based on the literature on knowledge management (exploration) to link a supportive corporate knowledge creation strategy (societal and organisational conditions and management knowledge vision) and organisational culture that knowledge-intensive banks intend to pursue.

2.4 Rationale for Use of the Knowledge Creation Model (SECI)

Adopting the organisational strategy of knowledge management as the principal emphasis, Nonaka is one of the most influential management academics in the felid of knowledge management (Earl, 2001). According to Nonaka and Takeuchi (1995), the SECI (socialisation, externalisation, combination, and internalisation) model turn is the key and most extensively implemented KM idea (Grant & Grant, 2008). This model of explicit and tacit knowledge focuses on converting individuals' knowledge into organisations' knowledge, and it is thought to be the dominant model of KC because it generates various processes of KM, such as codifying, generating, utilising and transferring knowledge (Haggie & Kingston, 2003; Rice & Rice, 2005; Aurum et al., 2008; Grant & Grant, 2008; Mikic et al., 2009). Other influential KM models were produced by Hansen et al. (1999), Davenport and Prusak (2000), and Bose (2004). However, their models do not include all of the knowledge processes which were stated in Nonaka and Takeuchi's SECI model.

Thus, the comprehensiveness of the SECI - model is the major reason for utilising it in the present study. In addition, Nonaka and Takeuchi (1995) suggested that their model (SECI) generates KC and asserted that a number of Japanese organisations had used the model to produce innovative knowledge. The model has a strong theoretical for use at national and organisational levels. Understanding of culture and its impact on knowledge creation together with utilisation of the SECI model will enhance the insight of the firm into their knowledge creation (KC processes) and the factors that affected it (Haag et al., 2010). The use of the SECI knowledge creation model in different organisations, for example, telecommunications, broadcasting, and computer in Spain and the USA has been broadly recognised (Martin-de-Castro et al., 2008). Furthermore, the SECI model has been utilised in the banking sector in many countries for analysing the importance of handling banking knowledge to remain competitive. In the UK, Chee et al. (2000) studied 25 organisations as well as four UK banks to analyse how knowledge management could add value. In Japan, Yamagata (2002) studied several Japanese Banks such as Sanwa Bank, Mizuho Financial Group, Bank of Tokyo-Mitsubishi and Sumitomo-Mitsui Banking. He found out that these banks were transferring internal knowledge but paid no attention to external knowledge. In the USA, Yamagata (2002) examined the characteristics of knowledge management in some big commercial banks such as Chase Manhattan Corporation, Bank of America and Citi Group. He found that these banks devoted significant consideration to external knowledge. To sum up, the application of the SECI model has proved useful in explaining the general procedure of KM in banks, which offers a sound justification for its use in this study.

2.4.1 The Initiation of the SECI Model

The acronym SECI stands for socialisation, externalisation, combination and internalisation. It is a model of knowledge creation that explains the processes of different

relations between tacit and explicit knowledge (Nonaka & Takeuchi, 1995). Nonaka (1994) performed a survey of 105 middle managers in various Japanese organisations, including Mazda, Honda, Canon and Matsushita in 1993, with a primary aim to research how knowledge is created and shared in the organisations. Nonaka proposed four modes of knowledge creation, which explain tacit and explicit knowledge transformation. Nonaka (1994) explains the socialisation mode as the first mode of transforming tacit knowledge into tacit and the externalisation process is the second mode, which is defined as transformation of tacit knowledge to explicit. The combination process as the third mode, defined as transformation of explicit knowledge into explicit, while the internalisation process, as the fourth mode, involves transforming explicit knowledge to tacit. The SECI model is utilised by different Japanese organisations to help in creating novel organisational knowledge, as this model acts as the motivator of knowledge creation (Nonaka & Takeuchi, 1995). According to Haag et al. (2010), the utilisation of the SECI model along with culture and its effect on knowledge creation enhances understanding of various organisations in knowledge creation and the processes related to it. Martin-de-Castro et al. (2008) demonstrated that knowledge-intensive organisations in Spain and the USA such as computers, telecommunications, electronic manufacturing and broadcasting utilised the knowledge creation model to a great extent. To summarise, the SECI model's theoretical support in knowledge management in banks offers a rational justification for applying it as part of this study.

2.4.2 The SECI Model and Knowledge Creation (KC)

Kao et al. (2011) define knowledge creation as a process that combines current knowledge in the creation of new knowledge. For Nonaka and Takeuchi (1995), the essence of knowledge creation is explained by conversion and mobilisation of tacit knowledge of people. To that effect, the SECI model is known as the catalyst for the KC process. The

significance of the KC model (SECI) is explained by the organisational knowledge created by changes taking place between tacit and explicit knowledge at four levels: group, person, inter-organisational and organisation (Nonaka & Takeuchi, 1995). The experiences of individuals that occur as a result of relationship with other individuals or the external environment result in the building of personal knowledge, according to the SECI model. Meanwhile, the model further highlights the group knowledge that emanates from the organisation of knowledge from individuals and from the upper-level practices made known at the inter-organisational level. In addition, Nonaka et al. (2000) opine that knowledge can be transferable from one organisation to another, which of course, can be combined to create new knowledge.

All the four SECI process are considered individually in the movement from one level of knowledge creation to another (Nonaka & Konno, 1998). The interaction between individuals leads to the creation of personal knowledge and is termed the Socialisation process (KCS). The enhancement of group knowledge from the personal knowledge of different individuals and the way this supports formation of organisational knowledge by saving tacit individual knowledge and group knowledge is termed as the Externalisation process (KCE). Inter-organisational knowledge along with knowledge formed by different groups forms the foundation of Combination (KCC). Kao et al. (2011) define Internalisation (KCI) as the process of explaining organisational knowledge that can be decoded back to individual knowledge.

Socialisation and externalisation, although essential processes in knowledge extraction, do not guarantee knowledge creation, as individuals just offer or obtain appropriate knowledge and thus creating knowledge through socialisation and externalisation can be challenging (Kao et al., 2011). Kao et al. (2011) explain that effective knowledge creation occurs at different stages of combination and internalisation, wherein new knowledge is

created when different individuals combine and internalise the received knowledge implicitly. We can conclude that the knowledge creation process cannot depend on the individual characters but also is highly reliant on an environment that supports creativity and thus ensures success. SECI processes of knowledge creation require various platforms in which knowledge is created and in order to include the idea for these areas or platforms in KC, the idea of "Ba" is demonstrated (Von Krogh et al., 2012). Nonaka et al. (2000) define Ba as the combined setting in motion, in which knowledge is generated, utilised and shared. Choo and Neto (2010) explains it further, as an idea that encompasses mental space, for instance beliefs and thoughts, physical space, for instance an office, and virtual space, for instance books, manuals and messages. Nonaka and Konno (1998) confirm that tight physical collaboration is essential in shaping a language that is common among different individuals and socialisation and externalisation are crucial for individuals to share time and space.

Nonaka et al. (2000) state that knowledge resources act as input, moderating variables and outputs for the knowledge creation process and available knowledge resources are assets for an organisation which uses the SECI model. For example, trust between the individuals in the organisations is increased as a knowledge creation process outcome and subsequently guides how Ba works as a phase for that knowledge creation process (Von Krogh et al., 2012). Leadership is another element that facilitates knowledge creation processes and understanding knowledge resources effectively simplifies the utilisation of Ba (Von Krogh et al., 2012). Organisations require a knowledge vision that binds different processes and individuals together and that leads to greater collaboration between employees while it also restructures the knowledge flow in an efficient manner (Nonaka et al., 2000). It exemplifies the type of knowledge requirement according to organisation needs and it is important that top management should develop the vision and communicate the same with all the members of the organisation. The information

resource sharing forms the major element in the organisation's learning vision and the organisation can be empowered with learning vision and information enhancement. The knowledge process in the organisation, along with leaders, should develop and stimulate Ba and this can be done by physical space for instance, meeting rooms, and computer networks and virtual space, for instance shared vision and goals. As explained by Nonaka et al. (2000) leaders act as the promoters of sharing the knowledge vision and they need to get the right mix of people that takes interest in sharing the knowledge vision effectively. The SECI model acts as the growth stimulant for authoritative knowledge creation, as explained earlier, and externalisation and internalisation propose knowledge creation which is pure, while socialisation and combination are related to knowledge exchange of tacit and explicit knowledge respectively, in the knowledge management process (Martin-de-Castro et al., 2008). In addition, as Haggie and Kingston (2003), Aurum et al. (2008), and Mikic et al. (2009), further explain, the SECI model is recognised as an intensely integrative knowledge management approach that assimilates a variety of knowledge protocols for creating, storing and sharing knowledge.

The literature review indicated the successful applicability of the SECI model within various environment settings. In this regard, several studies proved the application of the SECI model across the IT sector and in some knowledge intensive organisations in the USA and Spain, in such fields as telecommunication, data processing services, computer and electronic product manufacturing, internal services providers, web search portal, and internal publishing and broadcasting (Rodrigues et al., 2006; Martin-de-Castro et al., 2008). According to Eliufoo (2008), suggestions were made to support the use of SECI in construction organisations, in particular, the socialisation process, and the vital impact of SECI emphasises the mechanisms of innovation. Moreover, employing the SECI model of knowledge creation in several organisational ventures was agreed to enable

knowledge capture, sharing and creation in several organisational settings (Rice & Rice, 2005).

As mentioned above, many empirical studies demonstrate the validly of SECI in various organisations or industries. Nevertheless, to this author's knowledge, no studies have used this model in the banking sector in Saudi Arabia. The banking environment is a highly knowledge-intensive sector but banks are required to be efficient in KM to store and leverage knowledge in order to create competitive advantage (Lamb, 2001; Chatzoglou & Vraimaki, 2009). From a knowledge management perspective, literature indicates that creating and managing knowledge in banks is essential to enhance customer loyalty and experience. To summarise, the details discussed suggest that the knowledge creation abilities of an organisation can be enhanced with an understanding of the knowledge creation process model (SECI) (Bryceson, 2007). Nonaka's model, however, is socially arranged and comes from a particular setting with the experience of Japanese organisations and its processes are moulded by values and cultures (Haag et al., 2010).

2.5 The Application of Knowledge Management and the Knowledge Creation Model in the Banking Sector

In order to have a sustainable and productive competitive advantage, it is important to have continuous improvement that can be done through change of knowledge, which in turn adds value and thus brings improvement in performance (Batiz-Lazo & Woldesenbet, 2006). Smith (2006) stated that efficient firms derive nearly 75% of their incomes from new products or services which did not exist a few years ago. Therefore, striving for successful KM is considered highly significant by organisations (Markatou, 2011). The management of knowledge in banking operations is very crucial, considering the banking industry as one of the most knowledge-intensive sectors. The knowledge creation model (SECI), as discussed in previous sections, has been proven to be an effect

way to understand KM. This section of the study explains the utilisation of the SECI model in the banking industry. According to Ping and Kebao (2010) and Shih et al. (2010), customers are the heart of the banking industry, so banks need to utilise customer knowledge and design products or services as per customer needs. Banking work is not just routine, but involves critical thinking, adapting to change, utilising the web and complex assignments (Miles, 2011). Chatzoglou and Vraimaki (2009) and Mizintseva and Gerbina (2009) state that banks require all this information in order to run their business which forms part of their banking operations. The globalisation of capital markets has been the driving force for the banks to play a significant role in the development of the economy by efficient handling of information in their banking operations and developing new knowledge.

Kridan and Goulding (2006) and Cebi et al. (2010) described that in order to improve banking operations and enhance performance it is important for banks to concentrate on gathering appropriate data for their banking information. As described by Yamagata (2002); Mizintseva and Gerbina (2009), knowledge management plays an important role in banking operations by supporting risk management, human abilities and customer relationship management. Banks need to develop customer relationships and develop a sense of trust and confidence in their customers. Developing customer relationships enhances customer loyalty and capability and thus enhances banking performance (Ribiere & Chou, 2001; Mizintseva & Gerbina, 2009). Banks depend on their branches, organisational processes or arrangements, and representatives who interact with clients (Yamagata, 2002).

Knowledge sharing practices are the first step that needs to be established by an organisation that develops a custom of sharing information built on a foundation of trust among staff members. Information is power and that can pose a challenge for an

organisation; individuals may oppose knowledge-sharing as it may mean relinquishing their power. In addition, the absence of trust, inspiration or previous connections can also pose a challenge in knowledge sharing in organisations (Goman, 2004). Barachini (2009) explained that data quality is highly dependent on willingness to collaborate and to share information. Organisations must strive to enhance cooperation and inspiration through various training measures that stimulate information sharing (Cabrera & Cabrera, 2005; Barachini, 2009). Maier and Remus (2003) and Mizintseva and Gerbina (2009) stated that knowledge management in banks should be both human and technology-oriented, engage all people, utilise skilled people, and develop a practice of dominant information exchange. This is similar to the socialisation and internalisation process of SECI, wherein human-arranged knowledge management is significant in terms of customising knowledge through training programmes, improving KS and developing communication (Maier & Remus, 2003).

Knowledge management was first applied at the World Bank in the year 1996 and was then applied by some banks in various developed nations such as Spain, USA, UK, Canada, Germany, Portugal and Japan. Subsequently, KM was then applied in banks of various developing nations such as Malaysia, Lebanon, Tunisia, UAE and Libya. Ramalingam (2005) highlights that in 1996, the incoming president at World Bank started with the idea of applying knowledge management by making the World Bank a knowledge bank and a primary part of a new information collaboration. The directors of the World Bank recognised this novel idea and the importance of managing knowledge for the bank and with this, the World Bank then provided technological and human processes that supported sustaining KS and KC practices, for instance, establishing consultative services, developing practice groups and establishing online base for information. (Cohen & Laporte, 2004). King and McGrath (2004) explain that, to sustain KS so as to meet customer needs, the World Bank took the initiative and opened 15

knowledge centres in Africa with the aim of creating knowledge leaders linked to human asset improvement activities. Cohen and Laporte (2004) states that an extensive external and internal network that includes portals, intranet, and databases among others was established by the bank, which promoted all these activities.

2.5.1 Knowledge Management in the Banking Sector of Developed Countries

In Japan, Kubo et al. (2001) in a study on KM illustrate several example, such as Michiko Bank, that introduced KM human-oriented processes. The distribution of knowledge happened through social communication arrangements that include job rotation, in-house preparation and social networks. Mizintseva and Gerbina (2009) describe another case of human-arranged knowledge management, the Japanese bank of Tokyo-Mitsubishi Limited, wherein the knowledge-handling scheme established by the bank, called the 'Information Market System' allows exchange of information between its clients and employees. This scheme was developed with the aim of upgrading information exchange between clients and staff, and which drove staff to get involved with corporate and retail sector clients.

Several banks, as according to Yamagata (2002), such as Mizuho Financial Group, Sanwa Bank, Bank of Tokyo-Mitsubishi, Mizuho Financial Group and Sumitomo-Mitsui Banking were above par in terms of information exchange and gathering information, however; they ignored the external information. The emphasis on long-lasting employment is higher than on external recruitment in the Japanese work structure, which is the main challenge to gathering external information. In all these banks, knowledge management was human-arranged through various methods such as employment rotation every 3-4 years, training plans, and face-to-face interaction among others.

Summarising the above discussion, these research studies demonstrated that Japanese banks were largely human-situated and with minimal reliance on technology to manage knowledge. Inside information was considered highly significant as compared to external information. Inside information was circulated or shared via training programmes, social programmes and job rotation. The Japanese (Eastern) culture depicted in various Japanese banks is very similar to that of Saudi banks and this study utilises the same approach as used in the Japanese banking system.

In the UK, a study on 25 worldwide associations including four UK banks was done to examine the role of knowledge management in adding value (Chee at al., 2000). The results of the study illustrated that the attention of the respondents was on the idea that information gathering and sharing can involve both humans and technology. It found that information sharing was done by individuals collaborating with other individuals and with supporting developments such as intranet, web and various search technologies. The results also explained the issues of motivating workers in information sharing.

In the USA, a study was conducted on various banks such as Continental Bank, Bank of America, Chase Manhattan Corporation and Citi Group, which recognised the rudiments of knowledge management (Yamangata, 2002). US banks gave higher importance to external information as compared to their Japanese counterparts, particularly due to their reliance on hiring individuals from outside who are equipped with new information and are from different fields, such as information technology. One of the important elements that was identified was the migrant population from different countries across the world, which gives the opportunities to it us banks to select credible representatives with novel information from different countries. Also, frequency of people exchanging the jobs is quite high in the USA. Smith (2004) analysed knowledge management techniques in US banks and research by Pittsburgh National Corporation (PNC) Bank demonstrates that

PNC rely heavily on codification through transformation of tacit into explicit knowledge and then into gigantic databases. In addition, PNC developed intranet networks that allowed users to get access to the bank's website and web pages, which was a key factor in learning improvement through information sharing.

In Canada, Grant and Grant (2008) did a study on knowledge management in the retail banking of the five Canadian banks. They discovered on understanding in regard to employees' skills and the customer knowledge needed for knowledge management. As explained by Grant and Grant (2008), there was need of a knowledge management culture that could instil better communication between employees and clients. The collaboration between outside clients and employees was still in a nascent stage, particularly due to the absence of incentives required for information sharing. Royal Bank of Canada (RBC) relied on technology that allowed them to share information with customers through the internet in what was termed the FX-Direct project (Choo & Johnston, 2004).

In Turkey, the relation between knowledge management processes and practices and organisational performance was studied through quantitative methods within the banking industry (Cebi et al., 2010). Various activities such as developing a systematic structure, databases and knowledge classification flow were utilised, that supported creation of new knowledge about the risk associated with clients' business. To analyse the findings, regression analysis was done, which demonstrated that the knowledge management process affected the performance of the bank positively.

2.5.2 Knowledge Management in the Banking Sector of Developing Countries

The Asian Development Bank had a separate department that focused specifically on improvising the stream of information process through technology utilisation. The bank was set up in 2002 and the separate department known as the "knowledge committee'' dealt with information. Employees were motivated to use data painlessly through utilisation of knowledge management applications with a unique set of databases. The different aspects of the SECI model were utilised and it was found that the department externalised explicit information through a documentary process. It also socialised knowledge through various seminars and workshops. However, there was no sign that the process was echoed in Asian Development Bank.

In Mauritius, an empirical study on understanding of the KM strategies and KM idea utilised by commercial banks (Vencatachellum & Jeetac, 2008) demonstrates that 40% of the respondents specified that the top banks in Mauritius utilise a codification procedure, meaning they utilise information technology from individuals to the archive in exchanging information. On the other hand, a high percentage of respondents (80%) indicated that few banks do information exchange through socialisation mode with one to one conversation. The banks in Mauritius ignored the opportunity to change tacit knowledge into explicit knowledge, which indicates that externalisation was not practised in the banks. The study conducted by Vencatachellum and Jeetac (2008) demonstrated that Mauritian banks emphasised internalisation and socialisation as their fundamental KCP. Socialisation components such as job training, teamwork, job rotation and one-to-one dialogues were utilised by the banks, while the study did not provide any details regarding the internalisation process in the banks. Externalisation and combination were not significant for knowledge creation, even though the banks' primary knowledge management strategy, which was codification. There was high dependence shown by the

banks on internalisation and socialisation which further related to a personalisation strategy and with no reward strategy in place in the majority (90%) of the banks there was no assurance of an effective knowledge transfer process. The majority of the Mauritian banks did not handle explicit knowledge through combination and externalisation properly. Also, there were challenges faced by banks in applying knowledge sharing to control tacit knowledge proficiently through socialisation and internalisation processes.

In Malaysia, there was a study on Malaysian commercial banks and their adoption of knowledge management process by Ali and Yusof (2004). The analysis of the variables shows that KM factors were important to endorse customer relation management (CRM) in banking. KM allowed staff and clients to exchange information and meet customers' meets in an efficient way. Another study on two Malaysian banks demonstrated utilisation of knowledge management was still in nascent stage even though knowledge management concepts were known to the banks (Ali & Ahmed, 2006). The Tiger Bank focused on the codification process of knowledge management and the Camel Bank focused on a personalisation process, which differentiated the aspects of knowledge management utilised in the two banks. Camel Bank was technology oriented, whereas Tiger Bank was technology and human oriented, and the recommendation of the study was that banks should combine codification and personalisation processes. Different sets of motivational variables consisting of extrinsic elements, namely IT and organisation culture; and intrinsic variables, namely trust and learning were analysed (Tan et al., 2010). The analysis depicted that all the motivational variables positively affected the knowledge sharing process and the information technology had quite a significant impact.

In UAE, a study conducted on the adoption of knowledge management in the banking industry by Alrawi and Elkhatib (2009) was done through a survey method. The research focused on examining the knowledge management in the banking operations of Abu Dhabi by researching the ideas of knowledge creation, sharing and acquisition. The 72 managers who participated in the survey confirmed the importance of knowledge management practices to give new information; however, they recognised that knowledge management practices were still in nascent stages in UAE banking industry and the banks needed to develop an environment of trust to support the development of knowledge sharing and develop long-term organisation strategies.

In Egypt, a study conducted to examine the SECI model and its impact on innovation in Egyptian banks (Easa, 2012). It revealed that all modes of SECI were utilised by Egyptian banks and it also demonstrated that the internalisation and combination processes were more significant to create, gather and share knowledge. The documenting of outcomes of internal dialogues in the banks specified the transformation of tacit into explicit knowledge and the study concluded that the SECI model positively impacted innovation. Innovation was reflected in the surge in idea generation for banking products and services. In addition, this research proposed that the externalisation process was not the significant resource of knowledge creation, and this result differs from the study conducted by Nonaka and Takeuchi (1995).

2.6 Chapter Summary

The significance of knowledge has urged organisations to give careful consideration to dealing with it effectively (Choi et al., 2008). The development of KM might be associated with Nonaka's SECI model of KC, based on Polanyi's thoughts of individual information being hierarchical and handy (Mikic et al., 2009). The knowledge conversion model (SECI) proposes that knowledge can be made by opening up individual information to be a piece of the learning system of the association by converting tacit knowledge (TK) into explicit knowledge (EK) and transforming knowledge from the person to organisational level (Nonaka & Takeuchi, 1995). Finally, this chapter provides an overview of the concepts of knowledge and knowledge management and their usage in the SECI model with particular emphasis on banking industry. Hypotheses development and research model are presented in the next chapter.

CHAPTER 3: LITERATURE REVIEW, HYPOTHESES DEVELOPMENT AND RESEARCH MODEL

3.1 Introduction

This chapter gives a broad outline of the literature and related studies, prompting the acknowledgement of the rationale behind the choice to conduct this specific research. The association between organisational culture, knowledge creation process, organisational creativity and performance from prior studies is examined to distinguish the factors of KM and its roles that have been studied and to find which aspect of these factors has more impact on organisational performance. The limitations of past research are identified, in order to distinguish any gap in the literature and to construct the theoretical model and hypotheses of the study. The particular concentration of this chapter will be on the impact of organisational culture and the four modes of knowledge creation on organisational performance.

3.2 Knowledge Management Enablers

In the SECI model, KCP is grounded on all approaches that enhance socialisation, externalisation, internalisation and combination. Actually, this requires a suitable setting in which there are favourable conditions for the creation of knowledge. In general, the tacit type of knowledge is essential to develop a positive situation in order to make it explicit and to transfer it to the organisation's members. Kimaiyo et al. (2015) claimed that all processes of KM are vital for improving organisational performance (OP). Organisations are recommended to apply KM persistently by making new knowledge, changing knowledge into new systems, gaining from previous experience, and ensuring the organisations' insight, keeping in mind the end goal to accomplish better OP.

Recently researchers in knowledge management have directed their interest to three main factors affecting knowledge. The first is knowledge enablers (influencing factors or critical success factors), which are organisational tools for promoting knowledge constantly (Lee & Choi, 2003). The enablers can motivate protect the knowledge, knowledge creation process and enable the involvement of knowledge in an organisation. They include organisational culture, organisational structure and technology (Lee & Choi, 2003; Berraies et al., 2014). The second factor is the knowledge creation process, i.e. creating new knowledge through knowledge management activities. Wang and Wang (2012) stated that tacit and explicit knowledge involvement are positively related to innovation rapidity and fineness. The third influencing factor is organisational performance, which is defined as the degree to which a company attains its goals. Moreover, combining current knowledge and generation of new knowledge lead to innovation (Garcia-Morales et al., 2008). In actuality, numerous KME has been recognised in the prior studies.

Nonaka and Takeuchi (1995) recommended that the factors that enable the knowledge creation process (KCP) are the intention, fluctuation and creative disorder, and autonomy related to the synthesis of an appropriate place that stimulates the creation of knowledge. Such aspects include executive measures and organisational culture. Several researchers, academics and policy makers (Nonaka & Konno, 1998; Lee & Choi, 2003; Jeng & Dunk, 2013; Nejatian et al., 2013; Berraies et al., 2014) studied the organisational KME and claimed that organisations should develop common spaces or ‘ba’ for the purpose of enhancing knowledge creation. Successful knowledge management depends on choosing the key enablers. This will enhance utilisation of the organisation’s limited resources, material and time, and reduce the use of manpower, but ensure achieving the expected results (Yeh et al., 2006). Nejatian et al. (2013) also conducted a survey to evaluate the effect of knowledge management enablers on the knowledge creation process. The survey

results indicated that there is a positive impact of knowledge management enablers on the knowledge creation process. Moreover, the survey found that most of the studies conducted on different cases found that learning, trust and collaboration have a direct and significant influence on the knowledge creation process. On the other hand, the survey found that centralisation and formalisation have a negative direct influence on the knowledge creation process. Nonaka et al. (1995), Yeh et al. (2006), Ho (2009), Soon and Zainol (2011), Theriou et al. (2011) and Berraies et al. (2014) mentioned several knowledge management enablers; they are presented in the following table:

Table 3.1: Summary of Knowledge Management Enablers

Author	Year	Enablers
Nonaka et al.	1995	Knowledge vision, manage conversations, mobilise knowledge activists, creating the right framework, and globalise local knowledge.
Skyrme & Amidon	1997	A strong link to business imperative, a compelling vision & architecture, knowledge leadership, knowledge creating and sharing culture, continuous learning, a well-developed technology, infrastructure and systematic organisational knowledge process.
Liebowitz	1999	Strategy with the support of senior management, CKO or equivalent and KM infrastructure, knowledge ontologies and repositories, KM systems and tools, incentives to encourage knowledge sharing, and supportive culture.
Von Krogh et al.	2000	Installing knowledge, vision, managing conversations, mobilising knowledge activities, creating the right context and globalisation local knowledge.
Holsapple & Joshi	2000	Culture, leadership, technology, organisational adjustments, employee motivations, and external factors
Lee & Choi	2000	Organisational culture, corporate culture, people, and information technology
Davenport & Probst	2002	Leadership, performance measurement, organisational policy, knowledge sharing and

		acquisition, information systems structure, benchmarking and training.
Bixler	2002	Leadership, organisation technology, and learning.
Mathi	2004	Culture, KM organisation, systems and IT infrastructure, effective and systematic processes and measures.
Oltra	2005	Strategy motivation, people, and information technology
Yeh et al.	2006	Top managements' support, forming of an atmosphere and culture of sharing, people, employee incentive program, and informational technology.
Chong	2006	Management commitment, knowledge friendly culture, people, and information technology
Bishop et al.	2008	Strategy & leadership, corporate culture, people, and information technology
Singh	2008	Leadership style and employee effort
Ho	2009	Factor strategy and leadership
Soon & Zainol	2011	Learning
Berraies et al.	2014	Organisational culture, organisational structure, leadership, IT support

Concerning the meaning of KC, a few stages are to be taken for diagnosing organisational KC. Recognition of knowledge management enablers (KMEs) is the most essential and indispensable step to guarantee the accomplishment of acquiring KM (Wu et al., 2010). KMEs constitute a system to create, share, and secure the information of an organisation and in this way invigorate the KCP. Not only are they driving drive for the KC, but also they are thought processes by which people in general impart their insight and experiences to each other (Yeh et al., 2006). Past research demonstrates that the significance of KMEs in KM is strongly highlighted. Ho (2009) found that KMEs impact performance. Various types of knowledge management have been presented in the literature. Nonaka and Takeuchi (1995) have identified five fundamental empowering influences that support the SECI. In another characterisation, Von Krogh et al. (2000) offered five KMEs to

enhance the innovation procedure in organisations. Szulanski (2003) noted nine vital deterrents that could bring about information stickiness. Organisational culture, employees (people), information technology (IT) and organisational structure are recognised by many specialists as the four key empowering influences that appear to be most influential (Leonard-Barton, 1995; Ichijo et al., 1998; Sawhney & Prandelli, 2000).

In this study, we concentrate on the organisational culture. According to Holsapple and Joshi (2001), firms should create a suitable culture that inspires employees to create and share knowledge inside their firms. In this respect, Care is an important enabler for managerial relations (Von Krogh, 1998). Based on the idea of care, the present study emphases on trust, collaboration and learning (Eppler & Sukowski, 2000; Lee & Choi, 2003). This study emphasise how organisational culture impacts each mode of the knowledge creation process in the SECI model of Nonaka and Takeuchi (1995), which affects organisational creativity and influences organisational performance. Thus, the following sections will concentrate on these issues.

3.2.1 Organisational Culture

Organisational culture can be characterised as a special framework within which values are communicated and the conduct of workers is developed in a uniform manner (Jeng & Dunk, 2013; Schein, 2017). Organisational culture is concerned with the behaviour of humans within an organisation and the importance that people assign to those behaviours. It is one of the most essential concepts for the effective use of KM (Demarest, 1997; Davenport & Prusak, 1998; Gold et al., 2001). Chase (1998) revealed that 80% of participants recognised organisational culture as the most vital variable for KC. Organisational culture is also a part of the fundamental framework for the use of KM, because it has a great deal of influence on how an organisation acknowledges and encourages KM. The culture decides what knowledge is profitable and what information

must be maintained to secure an economically inventive and favourable position (Long, 1997). It is additionally critical to note that, for the fruitful use of KM practices, major social change is frequently fundamental. For example, the conventional model of 'pay for performance' ought to be traded for another framework that considers knowledge sharing (Jeng & Dunk, 2013). In addition, the failure of numerous knowledge exchange frameworks is regularly an effect of cultural components, as opposed to a lack of innovation (Pirkkalainen & Pawlowski, 2013).

Organisational culture is considered a key to good performance, but, on account of the many differences in corporate organisational cultures, many of which are often competing, it can have different effects. Meyerson and Martin (1987) stated that different views of organisational culture are the result of numerous, often competing, cultural influences at multiple levels within firms. Accordingly, adopting the same strategies in organisations in the same industry and in the same location does not lead to the same results (Kandula, 2006). A positive and solid culture can make a normal individual perform and accomplish exceptionally, whereas a negative and weak organisational culture may cause a remarkable worker to fail to meet expectations and result in a lack of accomplishment. In this way, a strong culture has a dynamic and direct role in the execution of administrative duties. Murphy and Cleveland (1995) trust that inquiries on culture will add to an increased comprehension of execution administration, and Magee (2002) argues that, without considering the effect of authoritative culture, authoritative practices, for example, and organisation performance could be counterproductive, because the two are materially dependent, so that change in one will affect the other.

Organisational culture is an agent of social attachment and gives workers a feeling of identification. Culture is a framework that operates under the premise of correspondence and mutual understanding. If these capacities do not work agreeably, the culture may lead

to a reduction in the effectiveness of the organisation (Armstrong, 2004). According to Smircich (as cited in Tousi, 1993), culture inspires us and gives us the mettle to discuss topics beyond the specialised processes of an organisation. Organisations that have access to culture and take advantage of it can free themselves from constraints and make new arrangements. Becoming comfortable with organisational culture impacts is a successful means of promoting comprehension, translation, education and organisational changes (Alvani, 2009).

Organisational culture has a twofold effect of reinforcing and hindering KM (Seyedyousefi et al., 2016). According to Naranjo-Valencia (2016), one of the real obstacles to KM execution in organisations is their organisational culture. An awareness of social change is considered one of the most essential parts of any KM framework. Organisational culture as a basic component, identified by its organisational nature, is a social framework based on guarantees about the arrangement of knowledge management use and hierarchy. In a similar manner, organisations ought to build appropriate cultures for the execution of KM (Corfield & Paton, 2016). Likewise, Gold et al. (2001) noted that the execution of knowledge management will be compelling if organisational culture improves it. Such a culture ought to empower trust, collaboration and learning among representatives. In addition, Gold et al. (2001) claims that a participative culture is an imperative framework, because it is through such an approach that individuals in a culture communicate and share their thoughts and information.

The culture should encourage three aspects, which are trust, learning and collaboration among employees (Gold et al., 2001). Trust is a key aspect of organisational culture since, without a high level of mutual trust, people will not share knowledge with each other, if there are suspicious of each other's intentions and behaviour. Hence, knowledge

management will be encouraged by creating a relationship based on trust among individuals in the organisation.

Another of the requirements of implementing knowledge management is to promote a learning culture. Promoting such a culture will constantly engage people in the process of creating knowledge in an organisation will also encourage them to learn. Organisations need an environment with a learning culture that should occur at all levels of the organisation in order to achieve successful knowledge management. In a learning culture, people are looking for problems and they will be encouraged to learn. Through learning, for instance, learning to implement tools, knowledge management will be enhanced. By promoting a culture of learning, the knowledge management capacity and implementation will be increased. According to Ndlela and Toit (2001), three concepts are required: learning, innovation change, culture change, in order to build learning capacity in organisations. Henceforth, the organisations will be sustainable, successful, progressing and learning from others and are constantly learning.

In addition, organisations require strong relationships, collaboration and an environment of closeness and fellowship (collaborative culture) to accomplish knowledge management. In such a culture, people support and help each other and they will share the required knowledge for doing their organisational activities. Therefore, the application of knowledge and developing new ideas and techniques in the organisation become easy. Interest or lack of interest in authoritative culture could affect the implementation of knowledge management in organisations.

According to many scholars and experts, organisational culture is the greatest distinguishing element for KCP's success (Nonaka & Takeuchi, 1995; Lee & Choi, 2003; Gururajan & Hafeez-Baig, 2012; Jeng & Dunk, 2013). Nejatian et al. (2013:109) claimed that "culture provides the basic infrastructure for the implementation of knowledge

management system". Davenport and Prusak (1998) emphasised that a knowledge-friendly culture creates a suitable environment for the knowledge management process. Specifically, authors discovered the essential features of organisational culture that positively affect KCP. Organisational culture incorporates three noteworthy factors: trust, collaboration and learning. These factors are known as the principal variables to accomplish on organisational culture that supports KM (Von Krogh, 1998; Eppler & Sukowski, 2000; Lee & Choi, 2003; Nejatian et al., 2013). The associations among these three cultural features and KCP are investigated in this study.

3.3 Knowledge Management Processes

To accomplish competitive advantage, organisations must develop the ability to use prior knowledge, to appreciate the value of new information, integrate it, and implement it to create new knowledge and capabilities (Cohen & Levinthal, 1990). Many researchers have emphasised the importance for effective knowledge management to have proper capabilities (Gold et al., 2001; Gray, 2001). The success of an organisation can depend on the extent to which the members develop their capabilities through the knowledge creation process (Nonaka & Takeuchi, 1995). In other words, individuals who are knowledge-providers generate new knowledge through research; innovation projects, experiments, observations and so on. Also, it is important for knowledge management to make knowledge accessible and usable within or between chosen organisations for the enhancement of the creation of competitive advantage. Nonaka and Takeuchi (1995) added another dimension, which is the relationship between explicit and tacit knowledge, as implemented in their four-dimensional knowledge conversion model (i.e. the SECI model), including socialisation, externalisation, combination, and internalisation. Meanwhile, the process continues taking different dimensions through the spiral process of knowledge creation. Knowledge management processes are taken to be a base for

organisational standards and social relations among individuals. Knowledge, however, is shared and converted after it has been created by practice, partnership, coordination, and education. To sustain a competitive advantage, it is important for the managers in an organisation to understand knowledge creation and transfer (Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Gupta & Sharma, 2004).

Knowledge creation needs employees' acceptance, obligation, commitment, creativity and team-oriented communication of information. Employees' commitment is an essential factor in determining the knowledge creation process (Lee & Choi, 2003). Individuals come up with new ideas, new concepts or innovative products, as knowledge creation passes through five phases (Nonaka & Takeuchi, 1995):

1. **Sharing tacit knowledge** – resembles socialisation;
2. **Creating concepts** – new knowledge is converted into explicit knowledge by constructing new concepts;
3. **Proof of concept** – justification for new concepts is set, which enables the progress of the organisation;
4. **Building a model** – new knowledge is transformed into a model, prototype or operational mechanism; and
5. **Dissemination of knowledge** – the organisation spreads the new knowledge throughout the company.

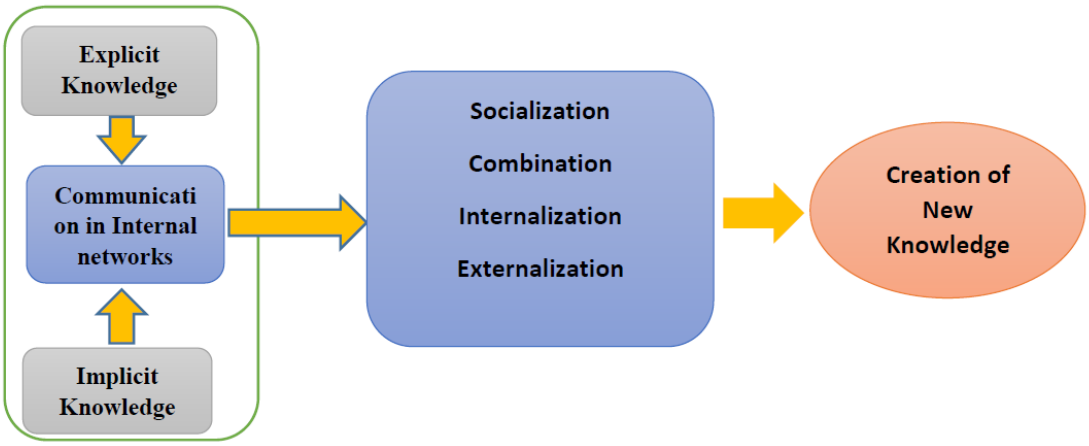
Knowledge securing is relied upon to affect authoritative execution. It includes the means of gaining information from either inside or outside of the organisation (Cho & Korte, 2014). Proper procurement of learning builds the supplies of information accessible to the organisation, accordingly giving organisations better ability to agree on auspicious choices that are fundamental to organisational performance (OP). The learning obtained must be sorted out, coordinated and displayed effectively so as to be helpful (Reisi et al.,

2013). Remarkably, organisations may acquire new knowledge within and/or outside the organisation. Perhaps, in the knowledge that comes from within the organisation, the individuals and the independent networks involved with its creation usually have similarity. It is, therefore, worth mentioning here that most research studies put more weight on internal factors of the organisation. Moreover, according to Nonaka et al. (2000), the studies that consider external factors focused on individuals as they obtain and diffuse external knowledge.

Nonaka and Takeuchi (1995), moreover, categorised knowledge into two types, namely: tacit (intangible) and explicit (tangible) knowledge. In broad terms, tacit knowledge is created by internal personal processes and held in human beings as an outcome of experience. Meanwhile, explicit knowledge is sometimes defined as 'know-what' (Brown & Duguid, 1998). A knowledge exchange protocol, in addition to convincing narratives, could be used to better develop the movement of tacit knowledge and explicit knowledge. The knowledge exchange protocol is notably, a process that structures the information exchange between recipients of information in a systematic way (Herschel et al., 2001). It is, therefore, strongly believed that these protocols make the tacit to explicit conversion process which is very important in making the process productive and, ultimately, efficient. The organisation uses its human capital to exchange tacit knowledge (TK), which becomes the base for further advancement (Nonaka et al., 2000; Lee & Choi, 2003). Therefore, the model of the knowledge creation process changes knowledge into business and brings about product development or process change (Nonaka et al., 2000; Lee & Choi, 2003). Such knowledge empowers organisations to coordinate and develop emerging knowledge (Nonaka, 1994), and they can make new information and create a new product at a lower expense and more rapidly than competitors do (Dröge et al., 2003).

From the above, when organisations are better at knowledge creation, they are more likely to accomplish growth, profit, and efficiency. It is believed that the knowledge creation process is crucial in light of its positive association with operational performance. Figure 3.1 starts by combining explicit and implicit knowledge, from inside or outside of the organisation, through communication involving internal networks. Then, this knowledge is converted into new knowledge by implementing the four modes of the Nonaka's creation model.

Figure 3.1: New Knowledge Creation Process Within or Outside the Organisation



The source of external knowledge is re-examined and spread broadly through interactions between suppliers, customers, competitors, partners/alliances, external experts, government agencies, research and development (R&D) personnel, and others (Gebert et al., 2002). Technical innovation could be affected directly through the capability to obtain knowledge. Knowledge creation is attained by the continuous transfer, combination, and conversion of different types of knowledge. This can be achieved by users' practice, interaction and learning (Frost, 2010). The enabling conditions for knowledge management are a clear vision, mutual trust, dialogue, diversity, knowledge activities, supportive context and knowledge leveraging (Song, 2008). It is necessary to combine explicit knowledge and tacit knowledge to create new knowledge. Organisational

knowledge is created through **"a knowledge spiral"** across the four modes of knowledge conversion. It may start from any mode but usually begins from socialisation. In addition, it is driven by organisational intention, which is an organisation's aspiration towards its goals. Empirical research conducted at the Kennedy Space Centre (KSC) by Becerra-Fernandez and Sabherwal (2001) revealed that all the knowledge management processes in the SECI model, except externalisation, had a positive impact on the expected cell of the spiral model. i.e. socialisation, externalisation, internalisation, and combination. At the overall level, knowledge satisfaction was affected by combination and externalisation, but not internalisation and socialisation. Many researchers have contributed to the knowledge management concept (Nonaka, 1991, 1994; Von Krogh, 1998; Dixon, 2000; Von Krogh et al., 2000; Tsoukas & Mylonopoulos, 2004). They have also discussed the knowledge conversion process, mainly the interaction between tacit knowledge and explicit knowledge. In enhancing the communication between organisations, the knowledge management process benefits from technologies such as e-mail and video conferencing. Moreover, during the new product development process, computer simulations enable knowledge management through experimentation with multiple plans. This is known as the internalisation knowledge management mode. In addition, physical or virtual models enhance the externalisation of knowledge management activity by making tacit knowledge of specifications explicit (Matthews, 2003).

On the other hand, social capital is required to enhance the combination and exchange of knowledge for creating new knowledge (Gold et al., 2001:187). Social capital is "the sum of actual and potential resources embedded within, available through and derived from the network of relationships possessed by a social unit". This should be encouraged formally and informally. This type of interaction and collaboration is important when attempting to transmit tacit knowledge between individuals or when converting tacit knowledge into explicit knowledge (Gold et al., 2001).

Nonaka's knowledge creation model came into being through reviewing several cases/studies. This model was taken to be very important since it is precise/concise and distinct. Moreover, it contributes very much to organisational knowledge creation. Nonaka and Takeuchi (1995) emphasised the critical importance of knowledge creation to the long-run achievement of the organisations. As Nonaka and Takeuchi (1995) put it, knowledge creation and the conversion process are derived on two dimensions. The first implies that only individuals create knowledge, and the second has the stand that knowledge is the interaction between tacit knowledge and explicit knowledge. Both dimensions affect the basis for outlining the four processes of creation and conversion of knowledge: socialisation, externalisation, combination and internalisation. Nonaka's theory has been explained as one of the most influential and best-known models in the knowledge management and strategy literature (Choo & Bontis, 2002). The model has undergone considerable review since 1995 according to Nonaka and Takeuchi (1995).

Nonaka and Takeuchi (1995) developed **a five-phase model of the knowledge creation process** based on the four different ways of knowledge conversion as internal dynamics of knowledge creation. They are sharing tacit knowledge**,** creating concepts, justifying concepts, building an archetype and cross-levelling knowledge. Nonaka and Tackeuchi (1995) explored the organisational conditions that appear to be necessary to promote a continuous knowledge creation process, and identified the **five primary knowledge creation-enablers** as follows:

1. **Intention**: It takes the form of organisational strategy in the form of business settings related to the efforts to achieve goals. The purpose of these efforts to judge the reliability and significance of a new portion of knowledge.

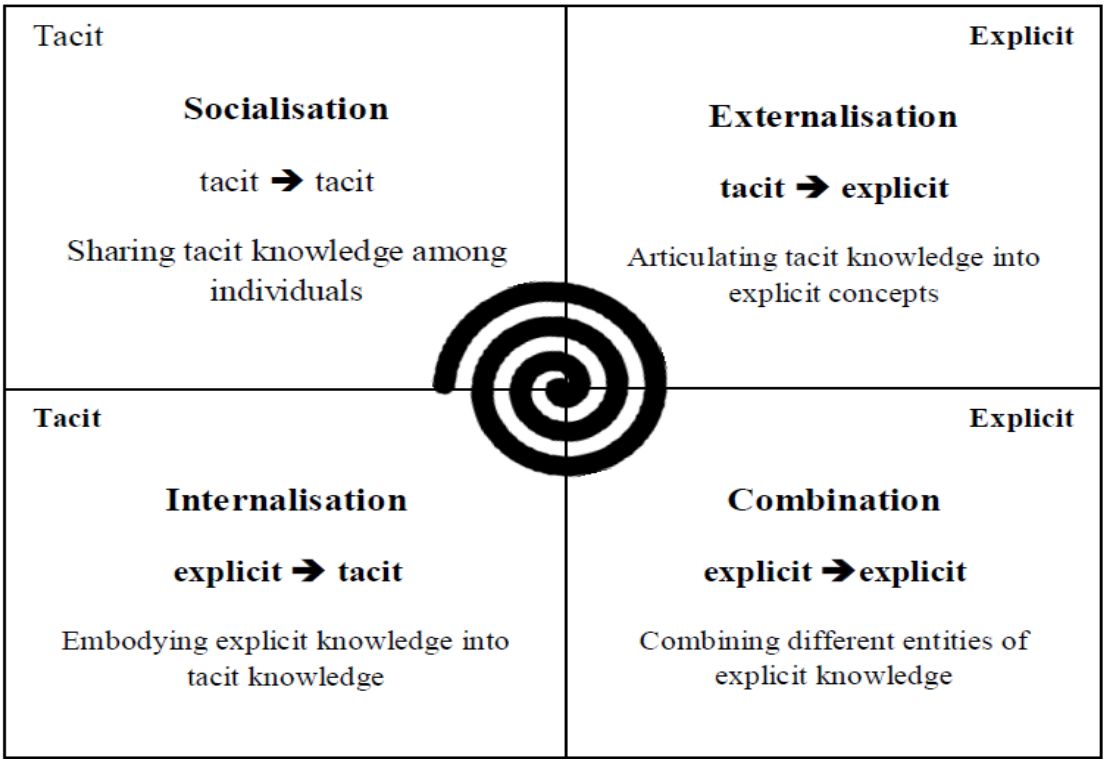
2. **Autonomy:** There are a number of independent employees who are able to explore opportunities, and find valuable information which could motivate creating new knew knowledge.
3. **Fluctuation and creative chaos:** The existence of managerial activities which challenge inflexible routines and rational frameworks.
4. **Redundancy:** The interaction between employees and departments about various business activities, management responsibilities and the company as a whole.
5. **Required Variety:** Combining scattered available information between the employees and the organisation in a quick and flexible way.

3.3.1 Knowledge Conversion Modes

Knowledge creation appeared as a phenomenon in the knowledge management literature (Nonaka, 1994). According to Nonaka (1994:5), "successful companies are those that constantly create new knowledge, distribute it extensively throughout the organisation embody it in new technologies and products." Empirically, knowledge comes from a dynamic process that entails a repeated discussion between explicit knowledge and tacit knowledge (Nonaka, 1994) and the model utilised for knowledge conversion is known as SECI model. In KCP, a 'knowledge spiral' (see Figure 3.2) is generated, where tacit and explicit knowledge supplement and respond to each other through four transforming processes; namely: socialisation, externalisation, combination and internalisation. To this effect, personal knowledge is steadily validated by combining others' knowledge through the four processes of the knowledge conversion spiral (Nonaka et al., 2006:5). Steady and functional influence between tacit and explicit knowledge always take place at the individual, group and organisational levels, changing the knowledge spiral in order to enhance the KCP (Nonaka & Takeuchi, 1995; Von Krogh et al., 2000). Conceptually, the

study by Nonaka is based on the work of Polanyi, which categorised knowledge as explicit and tacit. The tacit knowledge is individual and includes experience, reflection, internalisation or individual talent. Explicit knowledge is formal and can be easily communicated, documented, transformed, while tacit knowledge is hard to capture, communicate and share. In order to understand the technique of the SECI model, a brief overview is important. Therefore, each of the four processes will be defined below:

Figure 3.2: SECI Knowledge Conversion Model by Nonaka and Takeuchi (1995)



The **socialisation** mode (from tacit to tacit) is the "process of sharing experiences through social interaction (or socialisation) and thus creating tacit knowledge, such as shared mental models and technical skills" (Nonaka & Takeuchi, 1995:62). In the first mode, knowledge is converted through face-to-face conversion to create a new type of knowledge, where tacit knowledge is shared among individuals in an organisation (Nonaka et al., 2000).

The **externalisation** mode (from tacit to explicit) is "the key to knowledge creation, because it creates new explicit concepts from tacit knowledge" (Nonaka & Takeuchi, 1995:66). In the second mode of the knowledge conversion, where tacit knowledge is converted to explicit knowledge, ideas shared by individuals generate new perceptions. This could be reached by issuing useful reports about the relevant externals, using a skilled person's advice for setting the training programme subjects, reports writing by staff about the results of their daily activities and attending meetings, seminars, workshops and training programmes, and documenting the results. (Nonaka & Takeuchi, 1995; Nonaka et al., 2000).

The **combination** mode (from explicit to explicit) is the "reconfiguration of existing information through sorting, adding, combining and categorising of explicit knowledge (as conducted in computer databases) can lead to new knowledge" (Nonaka & Takeuchi, 1995:67). In the third mode, people group diverse sources of explicit knowledge into systemic knowledge, such as a new report, phone conversation, established through a meeting, etc (Nonaka et al., 2000).

The **internalisation** mode (from explicit to tacit) is facilitated "if knowledge is verbalised or diagrammed into documents or manuals. Documentation helps individuals internalise what they experienced, thus enriching their tacit knowledge. In addition, documents or manuals facilitate the transfer of explicit knowledge to other people, thereby helping them experience, the experiences of others indirectly" (Nonaka & Takeuchi, 1995:69). In the fourth mode, explicit knowledge is converted to tacit knowledge. This could be achieved by means of self-educating, which includes motivating workers to study linked courses, allowing unrestricted access for training plans, meetings, etc (Nonaka & Takeuchi, 1995; Nonaka et al., 2000).

These modes are usually influenced by organisational culture variables. Lee and Choi (2003) stated that collaboration is significantly related to externalisation, socialisation and internalisation, but not combination, while all knowledge creation modes are connected with trust. On the other hand, centralisation is negatively connected to externalisation, socialisation and internalisation, however not related to combination. By contrast, knowledge creation is negatively affected by formalisation. Moreover, IT support is positively related to knowledge combination only. Vicari and Troilo (2000) also support the strong connexion between knowledge creation and organisational creativity. Moreover, they argue that knowledge is one of the prominent features that leads the organisation to create. On the other hand, past experience could prevent individuals from producing creative solutions. Verona and Ravasi (2003) found that the availability and cooperation in using knowledge creation, absorption, and knowledge integration could provide the foundation for continuous innovation. Notably, organisational creativity connects and rearranges knowledge to create new useful ideas (Koh, 2000). Amabile (1998), therefore, suggested that creativity was not actually related to the amount of knowledge that an employee has, but to the way in which such knowledge is created and shared. So, the processes of knowledge creation unleashes organisational creativity (Lee & Choi, 2003).

3.4 Organisational Creativity

Organisational creativity is directed by organisational transformation, design, and dynamics through concepts, principles, and understanding. Creative organisations are defined as complex, social, political and technical systems. To enhance creativity in the organisation, the leadership in it must have the skills to realise knowledge at the individual, team and organisation levels simultaneously (Ferlic, 2008). In order to build a more creative workforce the organisation’s management should focus on enabling a climate

that encourages and enhances creative behaviour. The creative organisation is characterised by a balance between entrepreneurship and individual ingenuity, managing the risky balance between complexity, stability, and choices. It must be flexible, controlling entrepreneurial risk, but, at the same time, providing the freedom to search for new knowledge through learning and experimentation.

Organisational creativity has two pillars; individuals' characteristics and the characteristics of the organisation, which are essential for facilitating the employees' creativity (Parjanen, 2012). The processes of knowledge creation allow organisational creativity, which has a strong link with knowledge creation (Lee & Choi, 2003). Organisational creativity is significantly influenced by socialisation, externalisation, and combination in a positive manner (Lee & Choi, 2000). Organisational creativity is the capacity of making significant and valuable services, products, ideas, or methods by people cooperating in an intricate social framework (Amabile et al., 1996). Knowledge is an essential part of the capacity of the firm to be inventive (Vicari & Troilo, 2000). In this way, firms with better knowledge dissemination and making mechanisms are cleverer (Glynn, 1996). Additionally, organisational creativity joins and rearranges knowledge to make new, frequently surprising thoughts that others judge to be valuable (Koh, 2000). Organisational creativity is not necessarily identified with the measure of information that a worker has, but rather the way in which knowledge is made and shared (Albaum, 1997). Actually, organisational creativity has a solid connection with knowledge creation (Vicari & Troilo, 2000). There are many differences between high-creativity climates and low creativity climates, which they could be summarised as: 1) organisational encouragement, 2) supervisory encouragement, 3) work group supports, 4) freedom, 5) sufficient resources, and 6) challenge (Amabile et al., 1996). The variables identified as obstacles include workload pressure and organisational barriers, such as control, which is considered the major factor identified in the literature that impedes creative performance.

The control could be in the field of decision making, information flow, or even perceived control in the form of reward systems that put too much stress on increasing motivation.

3.5 Organisational Performance

Organisational performance has different meanings according to different scholars. In this research, we will follow the definition given by Daft (2000), and Ricardo and Wade (2001), who described it as the organisation's ability to use its resources efficiently and effectively to achieve its goals and objectives. Organisational performance includes three measures of an organisation's outcomes: (a) financial performance (profits, return on assets, return on investment, etc.); (b) product market performance (sales, market share, etc.); and (c) shareholder return (total shareholder return, economic value added, etc.) (Richard et al., 2009). Organisational capabilities are composed of the linkages between operational factors, i.e. resources and practices, and firm performance, as a mediating factor. Organisational capabilities are considered as higher-order constructs evolving from the interaction of a firm's resources, are firm specific, and integrated within the firm's processes. They include the activities that a firm performs well to present strategic advantage, and comprise tacit knowledge, characterised by the difficulty of being copied (Ray et al., 2004).

Organisational capabilities include six operational indicators, which Wu et al. (2010) define as:

1) Operational improvement: skills, processes, and procedures for filtering and strengthening existing operational research.

2) Operational innovation: skills, processes, and procedures for strengthening existing operational processes, and applying new operational processes.

3) Operational customisation: skills, processes, and procedures for creating knowledge through spreading and adapting operation processes and systems.

4) Operational cooperation: skills, processes, and procedures for generating vigorous and steady relationships with people from various inner operative areas and external supply chain partners.

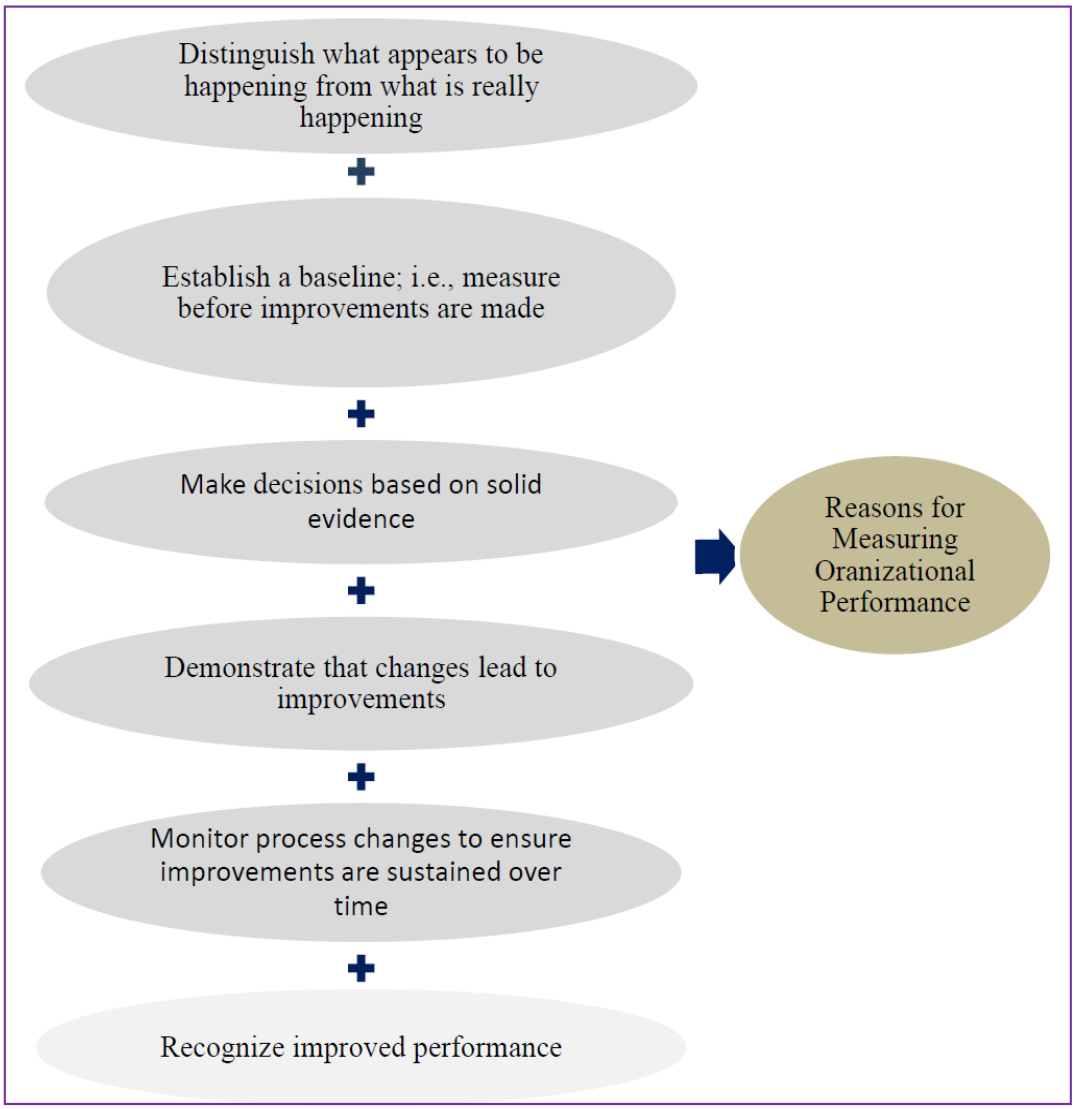
5) Operational responsiveness: skills, processes, and procedures for enhancing quick changes in inputs or outputs needs.

6) Operational reconfiguration: skills, processes, and procedures for completing the required transformation to synchronise the fit between operational strategy and the market conditions, when their equilibrium has become unstable.

In general, it was found by researchers that organisational knowledge creation can influence operational performance through its effect on organisational capacity (Zu et al., 2008; Anand et al., 2010). Business organisations could evaluate performance through examining relevant factors such as profitability, growth, market share and return on investment. Daft (1998) stated that the evaluation process faces two problems; the issues of multiple goals and subjective indicators of goal attainment. With the existence of these problems, organisational performance improvement can be achieved through a continuous dialogue process, generating new knowledge used to create innovative products and services (Marsick & Watkins, 1999). Many researchers explain why certain organisations perform better than others by establishing a link between different organisational elements and performance measures (Gholami et al., 2013). Performance measurement is conducted to monitor and evaluate the organisation's systems and to compare its achievements to its goals and objectives. These measures are used to evaluate the level and methods conducting the activities in the organisation, moreover, they are used to optimise programmes' efficiencies and effectiveness (HRSA, 2011). It is very

important to measure performance to assess the value of employee and management activities. Large organisations use both financial and nonfinancial performance measures but favour financial measures (Malina & Selto, 2004).

Figure 3.3: Steps for Measuring Organisational Performance



Source: HRSA (2011).

Creativity and innovation in any organisation are important to its successful performance. Creativity is concerned with idea generation, whereas innovation is related to idea implementation (Anderson et al., 2014). Several studies have found that knowledge creation activities have a positive and strong effect on performance improvement (Song, 2008; Berraits et al., 2014). On the other hand, there exists a negative impact on

organisational performance if the managers lack a strong integration power to integrate useful knowledge resources. (Chen & Lee, 2008). The management of the organisation should encourage the employees to attend fairs and exhibitions regularly to enhance knowledge performance. Moreover, they have to encourage them to find proper ways for collecting information from external sources and have solid methods for obtaining knowledge about their customers and competitor within and outside their field. Moreover, a study conducted by Shahzad et al. (2016) found that there is a significant positive impact of a system-oriented knowledge management system's strategy on knowledge management process capabilities, creativity, and organisational performance, while they did not find a significant impact of human-oriented knowledge management strategy on different knowledge management processes and organisational performance.

Knowledge is considered an important factor in the performance of the organisation when connected to the business strategy of the organisation (AlAmmary & Fung, 2008). Knowledge management strategies are main factors in performance improvement and thus for sustaining comparative advantage (Drucker, 2002). Organisational management scholars have found that process improvement practices can develop operational capabilities that lead to increased firm performance (Tan et al., 2007; Wu et al., 2010). The effect of knowledge management on organisational performance spans different levels of management. Moreover, the knowledge management process is divided into three sub-processes: knowledge development, knowledge utilisation, and knowledge capitalisation (Kalling, 2003; Mirghafori et al., 2010). Organisational performance is also affected by knowledge infrastructure capabilities and knowledge process capabilities (Gold et al., 2001).

Performance could be evaluated through a set of financial and nonfinancial indicators, which give information on the degree of attainment of objectives and results (Robinson,

1982; Galbraith & Schendel, 1983; Hofer, 1983; Lebans & Euske 2006). The most commonly cited measures of financial success and profitability in an organisation are profit margin, return on assets, return on equity, and return on sales. In addition, we have to study banking structure and evaluate its effect on performance indicators. Organisational performance could be enhanced if the organisation is characterised as a learning organisation, which develops a strategy aimed at increasing organisational learning and is defined as a primary performance driver (Suveatwatanakul, 2013). Song (2008) found that the knowledge creation process has a direct effect on the financial measures and organisational knowledge leveraging. Examining the connection between KM ability and OP is fundamental as the discoveries can help the organisations to additionally investigate the results of KM (Liu & Deng, 2015). Also, there is an absence of study that researches the connection between KM capacity and non-financial factors of OP (Cho & Korte, 2014). In addition, the outcomes of past studies are as yet uncertain with respect to the KM ability-OP interface, although a few specialists found that not each measurement of KM capacity is essentially connected to OP (Mills & Smith, 2011).

Banks have started to rationalise their products and services by including knowledge management processes to improve their competitiveness and performance (Dzinkowski, 2001). In financial services companies, there are two basic classes of knowledge management initiatives. The first is considered as an integral part of the overall corporate strategy which aims to grow, extract and exploit the company's knowledge to increase shareholder value. The second centres on improving upon the knowledge necessary to carry out specific business processes and thereby improve efficiency (Dzinkowski, 2001). Organisational performance and growth depend heavily on how managers understand customer needs and effectively use or exploit that knowledge to the benefit of the organisation. In general, financial services should adopt a strategy depending on an end-

to-end customer perspective that cuts across functional lines to redefine the performance improvement opportunity (Kopp, 2003).

As expressed by Tubigi and Alshawi (2015) for each researcher or professional within management and business fields, organisational performance is the central concern (Politis, 2002). Measuring performance can be troublesome as a result of the steady changes, which happen in the factors, and considers that are measured authoritative execution (Hubbard, 2009). In light of the estimations utilised by past specialists, OP is regularly measured utilising financial performance (Duh et al., 2012).

3.6 Hypothesis Development of Organisational Culture

3.6.1 Trust

Trust is a human-centric thought, and in that capacity inseparably connected to human convictions, notions, and deliberateness. It can be characterised as keeping up corresponding confidence in each other regarding aim and practices (Hurley & Hult, 1998). Trust can encourage open, substantive, and powerful knowledge exchange (Iansiti, 1993; Hansen et al., 1999). Trust in this work will be discussed as intra-organisational trust, i.e. it focuses on the relationship between workers and their immediate superiors. Overall, Trust is an essential slice of the social capital that defines relationships across a set of individuals, bringing them closer. In order to enhance performance, organisations should reduce redundant or excessive hierarchy levels in the management, inculcate team effort, motivate and empower employees to work towards organisation’s vision. The inter-relationship or the cohesive force that should exist between employees is created by a culture that is dependent and relationship oriented (Fu, 2004). The organisation should strive for the creation of various opportunities for its employees that should meet day-to-day management of capabilities. The utilisation of virtual teams (VTs) is common in numerous organisation (Chang et al., 2014) and they are for the most part portrayed as

geographically scattered work teams that utilise technology-mediated communication. Previous studies recognised components that are drivers of achievement and disappointment in virtual groups, for example, trust (Pinjani & Palvia, 2013; Shiller et al., 2014), influence (Tsai et al., 2014), initiative (Pinar et al., 2014), culture (Chang et al., 2014), information sharing (Pinjani & Palvia, 2013; Schiller et al., 2014), and communication (Chang et al., 2014).

As explained by Mayer et al. (1995), the definition of trust lies in the optimistic expectations of people's intentions that are assessed through various characteristics such as compassion, integrity, honesty and ability. Trust is one of the most critical factors behind a stable knowledge-sharing culture. It is considered as a facilitator to the intensity of effective knowledge sharing and creation since it is considered as an enhancing social relationship in organisations. Many researchers in the field of management, such as Lee and Choi (2003), Jeng and Dunk (2013), and Nejatian et al. (2013) found that trust positively affects KCP and is the primary constituent of knowledge management process (Davenport & Prusak, 1998). It forms a primary prerequisite of the collective environment and acts as the major factor in the accomplishment of effective knowledge management (Ribiere & Tuggle, 2005). Trust also encourages individuals to reveal their tacit knowledge and their willingness to share the same with others (Ngah et al., 2009) and if distrust is established, it not only affects the relationships but also prevents individuals from revealing knowledge to others (Sankowska, 2013). The studies conducted by Nonaka and Takeuchi, (1995); Nonaka et al. (2000) and Nonaka et al. (2006) emphasised the significance of shared trust as a vital substance for externalisation of tacit knowledge. Their studies focused on enabling conditions for KCP from the SECI model viewpoint. The environment of safety and trust in the organisations acts as a catalyst in enhancing knowledge sharing among individuals and behaviour that is inclined towards novelty (Sankowska, 2013). "Trust is indispensable to the creation of a social environment in

which ideas are freely generated, honestly assessed and selected and collectively transformed into profitable new products and services" as argued by Dovey (2009:19). In general, trust is concerned with people, and enhances creativity. Several researchers have applied the trust concept to organisations; they investigate its implications and relevance for business success (e.g., Elangovan & Shapiro, 1998; McKnight & Cummings, 1998). Moreover, it was found that trust increases the efficiency of transactions, cooperation, and transparency of communication between firms (e.g., Cummings & Bromiley, 1996; Ratnasingham & Kumar, 2000).

It is well known that sharing is essential for the success of an organisation. To achieve that, there should be a trusting environment among working personnel. At the same time, these personnel should cooperate with each other and share effectively to create a sharing culture, and not allow knowledge to be concentrated among the privileged few (Ling, 2011). Ling also advised the managers in an organisation to encourage trust between the workers and their colleagues with respect to what they have discovered and analysed. To achieve that, the managers of the organisation have to select the right individuals who can form a team to get tasks done. In addition, managers have to investigate the cause of lack of trust if it occurs, so they can remove the barriers to trust. Moreover, working personnel should participate in a series of team-building activities, which symbolise the processes that knowledge workers will implement on a regular basis, and develop useful decisions to solve problems (Politis, 2003). Salamon and Robinson (2008) found that if the employees feel trusted by their organisation, they become more willing to accept responsibility for their organisation's performance. There are different variables or features that support trust in evaluation of personnel, such as the ability to accomplish their responsibilities, the fairness they treat people, the honest and reliability in their behaviour, their openness to other ideas, and understanding of responsibilities of people they lead. Trust can be divided into the following, as mentioned by Ford (2001).

1. **Interpersonal trust:** Zand (1972) and Aulakh et al. (1997) define interpersonal trust as the person's ability to be sincere and honest towards other actions. The trust can be defined in terms of relationship dependency, as the ability to depend on others' verbal statements (Rotter, 1967).

2. **Group trust**: Group trust is the readiness of one person to enhance his vulnerability to the actions of several people that form part of the group (Rousseau et al., 1998).

3. **Organisational trust:** "Organisational trust is a feeling of confidence and support in an employer… organisational trust refers to employee faith in corporate goal attainment and organisational leaders, and to the belief that ultimately, organisational action will prove beneficial for employees" (Gilbert & Tang, 1998:322).

4. **Institutional trust:** It is a sentiment of safety, assurance, and confidence in organisations or institutions (for example the law, companies), which explains further that regulations, protocols, laws etc. are for the safety of people and to protect personal rights.

Interpersonal trust building in an organisation could be achieved through creation of a culture where people value relationships and show care and concern for the other person's needs, enabling explicit interactive signalling among colleagues, explicit socialisation to make new employees understand the values and principles of the organisation and how things are done in it, and means to manage, harmonise and develop employees' professional skills (Six & Storge, 2008). Specifically, relationships based on trust acts as an enabler for knowledge sharing across Arab cultures, from the SECI model viewpoint (Weir & Hutchings, 2005). Thus, trust is part of the knowledge conversion process. In addition, many scholars proposed that there is a significant relation between organisational culture and creativity (Andriopoulos, 2001; Martins & Terblanche, 2003; Goncalo & Staw, 2005; Pandey & Sharma, 2009), concerning the importance of the

organisational culture for encouragement and institutionalisation of creativity within an organisation. Accordingly, the first hypothesis for this study will be as follows:

H1: *The presence of high trust is positively related to the level of creativity through KCP in the Saudi banks.*

3.6.2 Learning

Von Krogh (1998) explained learning as the new knowledge that people gain and are enthusiastic to apply in order to influence others or make better decisions. The boundaries of learning should be wide enough to involve all the organisation's command levels and all personnel should be motivated to learn, challenge, grow and ask questions wherever required. Learning is considered as transmission of a cultural heritage and transfer of cultural knowledge. The difference between knowledge management and organisational learning is that the first focuses on the content of the knowledge while the second focuses on the process of acquiring it (Easterby-Smith & Lyles, 2003, 2011; Argote & Miron-Spektor, 2011). Various studies have accepted learning as one of the primary factors that drive KCP. Lee and Choi (2003:222) defined it as the "degree of opportunity, variety, satisfaction and encouragement for learning and development in organisation". Another researcher, defined learning as the "social process of individual interactions that aims to produce new organisational knowledge" (Ingham, 1994, as cited in Berraies et al., 2014:7) and this helps in explaining organisational learning leads to knowledge creation (Alipour et al., 2011). Other scholars view organisational learning as a goal of knowledge management, through motivating the creation, dissemination, and application of knowledge; thus the organisation can enhance its use of knowledge in a sustainable manner. It is not only important to accumulate knowledge, but also it should be accompanied by continuous revision for continuous improvement. The improvements are implanted in the organisation through practices such as written policies, prescribed

machine settings, quality control restrictions or “best practices” for dealing with regularly arising conditions.

Collaborative learning includes participation, joint meaning making, discourse and dialogue. Organisations cannot continue to exist and improve themselves with only their previous knowledge; they need to learn in order to struggle hard to overcome disordered and changing situations (Hannah & Lester, 2009). Learning organisations always seek to find ways to apprehend the learned ideas in order to go on to operate even if the workforce is highly mobile and/or the workforce temporarily fails to perform well (King, 2009). There are three interrelated challenges that face an organisation to achieve proper learning. They are: 1) The organisation has to know how to maximise the transfer of the existing knowledge to all sections; 2) Dependence on innovation to gain and maintain competitive advantage; 3) Maintaining continuous learning through the exploitation of existing resources and capabilities and the exploration of new resources and capabilities to improve performance (Matthews, 2003).

The organisational and social context of learning is an important aspect of knowledge generation and transfer (Easterby-Smith et al., 1998; Elkjaer, 1999). Organisational culture, structure and infrastructure must be integrated to facilitate and encourage learning. This will build and develop the capabilities in the organisation, which in turn, contribute to its competitive success (Stonehouse & Pemperton, 1999). Organisations could be developed into learning organisations through knowledge sharing, which requires sharing in visions, values, knowledge, communication and information, openness and trust (Ipe, 2003). Dickson (1996) found that a learning orientation accelerates market information processing activities. It also improves performance reliability (Levinthal & March, 1993). The concept was encouraged by Nonaka and Takeuchi (1995) who highlighted that continuous external and internal organisational learning capacity is positively correlated

to KCP. The researchers also demonstrated, through the SECI model, the significance of learning the culture as the core of KCP and the driver of knowledge creation in learning organisations. “For successful knowledge creation, organisations should develop a deeply ingrained learning culture” (Lee & Choi, 2003:191). It is important that supervisors should inspire their employees to learn and grow through various training programmes, co-operative problem-solving measures and perpetual questioning methods among others. López et al. (2004:94) argued that “knowledge management and learning go hand in hand”. They also advocated that “learning processes define the quality of knowledge distributed across the organisation as well as the effectiveness with which knowledge is put to use”. Kanevsky and Housel (1998) explained that the time consumed on learning is proportional to the magnitude of knowledge creation. In addition, there is an indication that learning has a substantial positive effect on knowledge management in the case of the telecommunication and mobile industry of Iraq (Al-Hakim & Hassan, 2012). A similar result was established in the Indian setting (Gururajan & Hafeez-Baig, 2012) and Korean context (Lee & Choi, 2003). From the above discussion, we can propose the second hypothesis in this research:

H2: *The presence of activities involving learning is positively related to the level of creativity through KCP in the Saudi banks.*

3.6.3 Collaboration

Lee and Choi (2003) defined collaboration as the degree to which people working in one organisation help one another in their work. Knowledge creation is highly linked to co-operation among different members of an organisation. In other words, organisations must encourage interaction among knowledge holders in order to boost knowledge creation and exchange. Knowledge creation is very important in the knowledge process, but it is more important to share the acquired knowledge among employees in the

organisation. Sharing will lead to a common understanding of the future vision of the business, the objectives, methods of working and domains of inspirations and accomplishments, which could be achieved through collaboration between them. The management of the organisation should encourage such activities as face-to-face meetings, exchange of views, and sharing of beliefs, attitudes, and opinions among the employees. Moreover, it is important to encourage the relationship and trust between groups.

Collaboration is facilitated by perceived proximity, which alludes to a psychological and compelling feeling of social closeness (O'Leary et al., 2014). It is viewed as a fundamental idea for understanding collaboration and has been given impressive consideration in recent literature on collaboration (Dekker et al., 2015; Chae, 2016). O'Leary and Wilson (2014) proposed that physical proximity (i.e., geographic closeness) does not influence the nature of connections in geologically conveyed groups, but perceived proximity affects these connections.

Corporate policy, such as the decision to create an organisation intranet, can enhance the success of knowledge, given that technological development is accompanied by the embracing of collaborative strategies, such as the inspiration of networks or communities of practice (Clarke & Cooper, 2000). Generally speaking, people work better if the work atmosphere is characterised by informality and sociality; social factors are needed by people in order to operate, learn and share knowledge (Bonifacio et al., 2002). Knowledge management implementation, to be successful, needs collaboration among the individuals in the organisation through individual Social Capital (SC) (Smith & McLaughlin, 2003). Moreover, close inter-unit integration and frequent and direct interaction between subunits are directly linked to increased innovation and product outcomes. Many researchers believe collaboration is a major enabler factor for KC (Graham & Pizzo, 1996;

Caruana et al., 1998; Hansen et al., 1999). Accordingly, the third hypothesis for this study will be as follows:

H3*: The presence of organisational members with high collaboration is positively related to the level of creativity through KCP in the Saudi banks.*

3.7 Hypothesis Development of Knowledge Creation Process

3.7.1 Knowledge Creation Process (KCP) and Organisational Performance (OP)

Today numerous organisation have revealed that achieving better performance does not just depend on the fruitful use of tangible resources but also on the effective management of information (Mills & Smith, 2011). Past studies have found that KC plays a fundamental part in effective organisations (Nonaka & Takeuchi, 1995; Li et al., 2009). Organisations that better apply the KC process can interface learning in new ways, and attract clients better by enhancing their market offerings (Li et al., 2009). According to Li et al. (2009) when firms are better at KC through SECI processes, they are more fruitful in achieving capability, improvement, and profit. In this manner, producing new knowledge is essential since it has beneficial outcomes on organisational performance (Li et al., 2009).

As indicated by the above and considering the significance of knowledge in the achievement of each firm, in this study we plan to shed light on the function of KC processes among the most vital parts of KM in enhancing organisational performance in knowledge-intensive banks. Furthermore and as discussed above, organisational creativity adds consistency between knowledge creation and performance has a solid connection with knowledge creation (Vicari & Troilo, 2000). Accordingly, our study investigates the following hypothesis and sub-hypotheses in the following sections:

H4: *KCP positively contributes to the level of performance through creativity in the Saudi banks.*

3.7.1.1 Socialisation

The socialisation process means that an individual appreciates the values, abilities, expected behaviours, and social knowledge essential in conducting, within the organisation, members' organisational roles. It is built on getting tacit knowledge, and related to the interaction between people to transfer information or knowledge between them (Louis, 1980). The information exchange approach (Devlin, 2001) assumes that the aim of each participant in a social interaction is to take new information about the focal object or situation into his or her context. This necessities synchronisation of the socialisation process to organisation culture. Moreover, organisational socialisation is a dynamic process of acquiring organisational knowledge and organisational skills. If the socialisation process is accomplished successfully by the individual employees in the organisation, productivity will increase; otherwise, the employees will leave the work. Moreover, newcomers will be oriented to what the organisation expects from them and enhance their work through groups. However, socialisation depends mainly on individual learning. Chao et al. (1994) in their research on the role of socialisation in the knowledge process, found that the most important learning dimensions are: 1) Performance proficiency: job task learning, 2) people: learning to establish satisfying and successful work relations, 3) politics: acquiring information regarding formal and informal work relations, 4) language: learning unique professional and organisational terminology, 5) organisational goals and values: including tacit goals and values, and 6) history: acquisition of knowledge regarding personal histories of peers, organisational traditions and so on.

Investigation of the socialisation norm includes different factors such as group norms, job characteristics, socialisation strategies, and first-year job challenges (Reichers, 1987). In a study on the Egyptian banks, it was found that, although socialisation, in general, has a positive effect on knowledge creation, some limitations were found to minimise the benefit of socialisation process in them. Some negative feedback was reported, concerning the benefits of sharing knowledge with academic experts, the benefits from applying a personnel rotation policy, especially for important jobs and for the hard-working staff, and the benefit of sharing knowledge among staff and with customers during social meetings, due to the limited number of these meetings (Easa, 2012). To achieve organisational socialisation success, it is necessary to enable openness of communication and interaction between superiors and junior employees, understanding the task and organisational obligation in addition to the strategies of organisational socialisation. This will enable newcomers to adapt easily in the organisation and familiarise themselves with it in professional and social terms. Organisational socialisation includes a variety of areas, such as personality, identity, learning (especially in social skills), reactions, motivations, attitudes, behaviours, job roles and values, including the processes of identification, transfer of loyalty, and cultural changes. The individual characteristics that affect socialisation speed are openness, commitment, credibility, and the need for affiliation. On the other hand, the group characteristics affecting socialisation speed are group size, proximity, care, knowledge diversity, and demographic variables. The organisational characteristics are norms and culture, rewards systems, context (Ba), leadership styles, organisational slack, and deadlines (Ratković-Njegovan & Kostić, 2014).

Through socialisation, individual team members become close and they express their ideas to the team following their experience, thus, providing insights to problems that other team members might not have considered, if working in isolation (Anand et al.,

2010). This can be made possible through brainstorming; idea generation, nominal group techniques, structured project facilitation methods, and root-cause problem analysis (Breyfogle, 2003; Anand et al., 2010). For Linderman et al. (2010), process improvement tools and methods play many roles in facilitating an understanding of problems and their resolution. Further, establishing a common problem-solving methodology can assist team members to engage with each other socially to develop a common understanding of problems and opportunities (Linderman et al., 2010). Handzic and Chaimungkalanont (2004) confirmed in their research the important role of organisational socialisation in innovative organisations. This was caused by the strong relationship between informal and organised forms of innovative organisation. They emphasised in their research the existence of a strong and significant positive relationship between informal as well as organised forms of socialisation and creativity. Along the same line, Shahzad et al. (2016) confirmed the existence of a significant positive impact of a system-oriented knowledge management systems strategy on knowledge management process, capabilities, creativity, and organisational performance. Accordingly, our research states the following sub-hypothesis to be investigated:

H4a: *Socialisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

3.7.1.2 Externalisation

Knowledge externalisation is the act of converting tacit knowledge into explicit knowledge (Nonaka & Konno, 1998). It means making tacit knowledge understood by others, i.e. explicit through logical reasoning or innovative conclusion. Externalisation is considered to be a key stage in the creation of new knowledge. In today's organisations, intellectual capital has become more important than physical or financial assets (Stewart, 1998). Moreover, learning and the creation of new knowledge were rapidly concluded to

be of prime importance (Nonaka & Takeuchi, 1995). Tacit knowledge is an important factor in knowledge sharing and creation (Willke, 1998). Because tacit knowledge is accumulated through study and experience, it is difficult to share it in the organisation; it requires communication of tacit knowledge and group commitment (Nonaka & Takeuchi, 1995). Tacit knowledge can be shared and communicated through various activities and mechanisms such as conversations, workshops, on-the-job training, and the use of information technology tools such as email, groupware, instant messaging and related technologies.

There are two key factors that support practical externalisation: converting tacit knowledge to explicit knowledge, and explaining the tacit knowledge for other employees in an understandable form (Nonaka & Konno, 1998). Externalisation is enhanced by a continuous discussion where symbols are used to clarify viewpoints and expose tacit knowledge so it can be easily learned and adopted (Nonaka et al., 1994). The externalisation process can express tacit knowledge in a way that assists the team to improve a process through showing how the explicit knowledge should be used in this respect (Raelin, 1997). Knowledge creation achieved through externalisation could be enhanced by employing Six Sigma projects, and thus boost bottom-line performance (Sin et al., 2010). Six Sigma was established in the manufacturing sector, and means fewer than 3.4 per million defects. Lee and Choi (2000) found that externalisation showed a strong positive relationship with organisational creativity, thus, the next sub-hypothesis is as follows:

H4b: *Externalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

3.7.1.3 Combination

Combination is related to the conversion of explicit knowledge into more complex sets of explicit knowledge, which is clearer and more useful to the organisation through capturing and integrating new explicit knowledge and collecting data and information from inside or outside the organisation. After that, the explicit knowledge will be shared through presentations and meetings to establish new knowledge (Nonaka & Konno, 1998). In the combination process, the organisation takes practical concrete steps through justification. A workable combination is based on three processes (Nonaka & Konno, 1998). They are collecting different aspects of relevant knowledge from inside or outside the organisation; coordination between team members; presenting the explicit knowledge among organisational employees, and transforming the explicit knowledge into usable documents.

Knowledge conversion involves the social processes that combine different knowledge areas in the organisation to create and stimulate product designs when searching through past knowledge inside the organisation, the availability of diverse knowledge areas encourages production of new combinations of ideas that drive the creation of innovations. The reconfiguring of existing information through the sorting, adding, re-categorising and re-contextualising of explicit knowledge can lead to new knowledge (Nonaka, 1994). As an example of converting the level of explicit knowledge, following his study on the Egyptian banks, Easa (2012) observed that the management of these banks usually use updated instructions and the reports provided by the top management to currently review their databases and communicate them through emails and periodic reports/bulletins. According to Easa (2012), the top managers did not, however, inform their employees on the reports written on other competitors.

The combination of existing ideas and information is reached through the interaction between employees' close counterparts (Bergendahl & Magnusson, 2015). Collecting information from all sections of the organisation and putting it in the financial reports is considered new knowledge (Nonaka et al., 2000). Although some researchers alleged that varied knowledge components generate performance (Fleming, 2001; Taylor & Greve, 2006), the information processing viewpoint on team diversity holds that greater reasoning diversity leads to higher performance potential. In general, knowledge combination is fundamentally difficult; it necessities the existence of a team that has past experience working together. Accordingly, we have the third sub-hypothesis as follows:

H4c: *Combination tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

3.7.1.4 Internalisation

Internalisation is a kind of learning, simulation, and reorganisation through action. It refers to a process that converts explicit knowledge to implicit knowledge (Nonaka & Konno, 1998). In other words, it explains how the user builds tacit (internal) knowledge based on explicit knowledge. It explains how to transfer knowledge from organisation level to individual level. After this new tacit knowledge is practised by individuals, the knowledge creation will be enhanced, since the organisation will provide training programmes for its employees. In general, internalisation processes include necessary communications, exchanges of ideas, and learning that can turn into innovations. Although explicit knowledge can be shared among individuals at low cost, internalisation may cause a loss in its "explicitness" (Nonaka, 1994). Internalisation is said to be an individual, psychological process. It was found to have a positive influence on knowledge transfer, creation, and innovative behaviour (Siadat et al., 2015). The Egyptian banks (Easa, 2012) allow their staff to participate in postgraduate degrees or certain professional

courses e.g. credit, customer services, corporate and MBA courses, to transfer explicit knowledge into tacit knowledge by reading the materials provided, such as handouts, books, and any electronic materials. Tsai and Lee (2006) found that explicit knowledge could not be successfully converted into tacit knowledge, in an "incomplete learning cycle", but in the case of a complete cycle, explicit knowledge was more easily converted into tacit knowledge. Rahimi et al. (2011) found from their study of the relationship between the knowledge management (KM) process and creativity among faculty members in a university that there is a significant relationship between internalisation and organisational creativity. From the above we can state the fourth sub-hypothesis as follows:

H4d: *Internalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

3.8 Hypothesis Development of Organisational Creativity and Banks' Performance

Organisational creativity adds consistency between knowledge creation and performance as defined by various models developed by different researchers. Organisational creativity is the means by which knowledge is shared after creation and its primary role is the intermediate outcome as "the creation of a valuable, useful new product, service, idea, procedure or process by individuals working together in a complex social system" (Woodman et al., 1993:293). Moreover, organisational creativity represents an intense organisational change and in order to comprehend the performance of organisations, organisations should strive to associate the knowledge process with the intermediate outcomes (Davenport, 1999). According to Woodman et al. (1993), creativity is the essential intermediate outcome that contributes to the understanding of organisational effectiveness and survival. As explained by Amabile et al. (1996) this study demonstrates

a model that includes organisational creativity at the core of knowledge management (KM) and as the source or foundation of all innovation (Gurteen, 1998). Neglecting organisational creativity can speedy reduce the business. Organisational creativity can transform knowledge into business value. Vicari and Troilo (2000), however, noted that explained the relationship between knowledge creation and organisational creativity has received little consideration, despite its high potential. Organisational creativity is a requirement of healthy innovation and for enhancing the success of the organisation's performance (Nisula, 2013). In addition, organisational creativity is a two-dimensional construct described by originality and practicality. It is positively related to firm performance (Bratnicka, 2013). In our study, we set the fifth hypothesis as follows:

H5: *There is a positive relationship between organisational creativity and overall performance of the banking sector in Saudi Arabia.*

3.9 The Limitation of Previous Studies

As described before, there is a limitation to the results of past studies, both in terms of their informative power and of their generalisability over a more extensive range of organisations and social settings. First, regarding the limitations of their informative power, it has been clarified that the literature has failed to reach understanding on the precise influences of knowledge management on organisational performance. It is also unclear precisely which aspects of knowledge management have greatest impacts on organisational performance, as the literature has reached different conclusions. In addition, existing studies have also managed to mix the dimensions that make up knowledge capabilities, and so not classify the basic parts (Zaim et al., 2007; Mills & Smith, 2011).

In the same vein, it should be noticed that the results of the literature always differ depending on the techniques and/or models used to measure and test the relationship. In

addition, the results of studies differ extensively in their conclusions with respect to the nature of the organisation they use as the benchmark for their evidence. This is the situation since the nature of the knowledge pertinent to a media organisation, for example, will be very different from the nature of the knowledge related to a bank. It therefore becomes evident that there is a significant gap in the literature of empirical evidence which shows that KM makes to organisational performance (Zack et al., 2009). This however, poses some difficulties for practitioners. For instance, in a survey of 431 European and US organisations led by the Ernst &Young Centre for Business Innovation, the greatest problem faced in carrying out knowledge management exercises was identifying the influence of KM and/or quantifying the importance of knowledge assets (Ruggles, 1998).

There is additionally an important gap in the literature regarding assessing and recognising best practices of KM and their exact effect on organisational performance, specifically those within the banking sector. It is these gaps which the following study seeks to address. This present study would argue that this investigation is essential for the bank context, as the modern business environment requires all organisations in all parts of the world to undertake KM processes in order to stay competitive. From this survey of the related literature, it is obvious that there is still work to be executed on the subject of determining which aspects of knowledge management impact organisational performance, and how they do so. The present study is, in this way, a novel study as it gives an in-depth investigation of knowledge management processes, not only in the context of a vital and knowledge-based industry (banks) but also within a country that is unique in terms of its socio-cultural setting (Saudi Arabia).

3.10 Theoretical Background

Researchers and scholars use various knowledge management models to develop a unified framework for knowledge, since knowledge management and the knowledge process is an important strategic intervention that combines organisational resources, such as technologies and human resources (Choy, 2005). Basically, knowledge management consists of five steps. They are 1) identification of needs, 2) identification of knowledge resources, 3) acquisition, creation or elimination of knowledge-related resources/processes/environments, 4) retrieval, application and sharing of knowledge, and 5) storage of knowledge. It is worth mentioning here that none of these processes is independent; they are affected by a large number of factors. Accordingly, knowledge management frameworks differ from each other and can be presented in several ways (Frost, 2010). Knowledge management has evolved from simple models which focused on the transfer of tacit knowledge and explicit knowledge to complicated frameworks which include several specific processes, such as intellectual capital (Haslinda & Sarinah, 2009).

After analysing and evaluating the researches of Nonaka and Takeuchi (1995); Lee and Choi (2003) and Hsieh (2007), this research intends to develop a unique model to examine the relationships between organisational culture, KC process, creativity and performance of the organisation. The research model contains organisational culture (collaboration, trust and learning), four modes of KC, organisational creativity and organisational performance in the research model to test research hypotheses. This study derives its theoretical basis from the knowledge-based view (KBV), resource-based view (RBV), and theory of systems thinking. KM enablers (organisational culture) directed at the organisational performance are explained by the strategic management perspective of RBV. Knowledge processes and their relationship with creativity and performance are

explained by KBV and the rationale to develop a coherent, integrated and interdependent model of successful KM is endorsed by a systems thinking perspective. Organisations struggle to improve their performance and value-creation processes by obtaining and applying superior assets in an innovative and creative manner. RBV clarifies the role of assets and active abilities in the firm's value-creation process and attainment of competitive advantage, which is a substitute for larger organisational performance and higher economic revenues (Wernerfelt, 1984; Barney, 1991). It identifies the features of an organisation process through a resource that can be developed as organisational performance depends on its ability to craft a strategy that would select and accumulate strategic assets and utilise those assets to create sustainable competitive advantage.

Based on the principles of RBV and KBV, knowledge is viewed as the most deliberate and useful resource that aids organisations to produce and endure competitive advantage (Nonaka & Takeuchi, 1995; Kogut & Zander, 1996). From this viewpoint, the standard of knowledge will act as a foundation of competitive advantage, and KM should endeavour to grow approaches, procedures, practices, tools and systems to obtain, share, distribute, utilise and organise higher knowledge increase value for numerous shareholders (Holsapple & Singh, 2001). As knowledge creation and sharing is a continuing process, such provisions would aid persons to study and bring innovation in value-creation processes to generate economic revenues for organisations.

The systems thinking theory in this concern takes a holistic perspective and views individual parts in relation to their interrelatedness to other parts of the whole system. Conflicting with the old-style viewpoints, system thinking breaks a bigger system into smaller parts, and then studies the interrelatedness, interdependence and impact of diverse parts on each other to recognise the complete process of the whole. This viewpoint has been extensively utilised in cross-field studies, for example, human resources, economics,

medical, development, etc. Consequently, the incorporation of diverse elements in the research model projected by this research is characterised by a systems thinking perspective while examining the relationships between KC process, organisational culture, organisational creativity and eventual performance. The model proposed by this research can be seen in Figure 3.4.

3.10.1 Research Model

The aim of this study is neither to propose a model that accounts for all of the relations motivating KM nor to make a lengthy list of potential knowledge enablers or processes that influence OP. Consequently, the research model is an integrative focus on a few main variables that can explain a large percentage of the variance in KM. According to Lee and Choi (2003), an integrative model that incorporates KCP, knowledge enablers and organisational performance are imperative. This type of model provides a clearer view of how each of its factors influences performance, from a process-oriented perspective. The aim of this study is to analyse the impact of aspects of organisational culture and the knowledge creation process on OC and OP within the organisation. The emphasis is on KC processes, namely socialisation, externalisation, combination and internalisation in the context of domestic banks operating in Saudi Arabia and to present a set of suggestions for stakeholders, academics, and decision makers. The concept of KC theory (SECI) was adopted as the theoretical framework of this research (Nonaka, 1994; Nonaka et al., 1994; Nonaka & Takeuchi, 1995; Nonaka et al., 2000; Nonaka & Toyama, 2003).

The success of most organisations depends on their ability to create new organisational knowledge through a cyclical model of continuous interactions and transformation of tacit and explicit knowledge on the individual, group and organisation levels. This occurs through the four processes of socialisation, externalisation, combination and internalisation. From the above discussion, the author can build a model evaluating the

impact of converting tacit and explicit knowledge to one of the knowledge types to create new knowledge that will enhance the banks' performance improvement in Saudi Arabia. The emphasis should be placed on the KC processes of socialisation, externalisation, combination, internalisation and performance improvement.

The model starts with combining the explicit knowledge and tacit knowledge to be implemented in the SECI model, which contains four constructs: socialisation, externalisation, internalisation, and combination. The new created knowledge is expected to enhance knowledge performance improvement through its effect on the financial situation at Saudi banks. Keeping in mind the end goal of accomplishing a superior comprehension of knowledge management performance, organisations ought to emphasise the link between the knowledge creation process and intermediate outcomes (Davenport, 1999). This study emphasises how organisational culture affects each mode of the KCP in the SECI model of Nonaka and Takeuchi (1995), influences OC and organisational performance. Thus, the mediating effect of both the KCP and OC will be analysed. A vital intermediate outcome is organisational creativity (OC), which gives a key to the comprehension of organisational effectiveness and survival (Woodman et al., 1993). Our model includes OC in light of the fact that it is the seed of all innovation activities (Amabile et al., 1996) and at the very heart of KM (Gurteen, 1998). In addition, OC transforms knowledge into business importance.

It has been mentioned in section 3.4 (Chapter 3) that organisational creativity (OC) has a strong connection with the knowledge creation process (Vicari & Troilo, 2000; Lee & Choi, 2003). OC is positively affected by externalisation, combination and socialisation (Lee & Choi, 2000). This study incorporates OC as an intermediate outcome, as used by Lee and Choi (2003). It is the basis of innovation (Amabile, et al., 1996) and at the centre of knowledge management (Gurteen, 1998). OC is a prerequisite of advantageous

innovation and for increasing the achievement of the organisation's performance (Nisula, 2013). In addition, OC converts knowledge into business benefit. Disregarding OC can weaken a business (Lee & Choi, 2003). Woodman et al. (1993) proposed that creativity is a vital intermediate outcome that contributes to organisational survival and effectiveness. In addition, organisational creativity is positively associated with firm performance (Bratnicka, 2013). To sum up, this study follows the work of Lee and Choi (2003) and a substantial body of literature regarding incorporating organisational creativity in the research model.

From the above literature review, theoretical background and discussion, we could summarise the research hypotheses which will be examined and tested in this study. They are:

H1*: The presence of high trust is positively related to the level of creativity through KCP in the Saudi banks.*

H2*: The presence of activities involving learning is positively related to the level of creativity through KCP in the Saudi banks.*

H3*: The presence of organisational members with high collaboration is positively related to the level of creativity through KCP in the Saudi banks.*

H4: *KCP positively contributes to the level of performance through creativity in the Saudi banks.*

H4a*: Socialisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

H4b*: Externalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

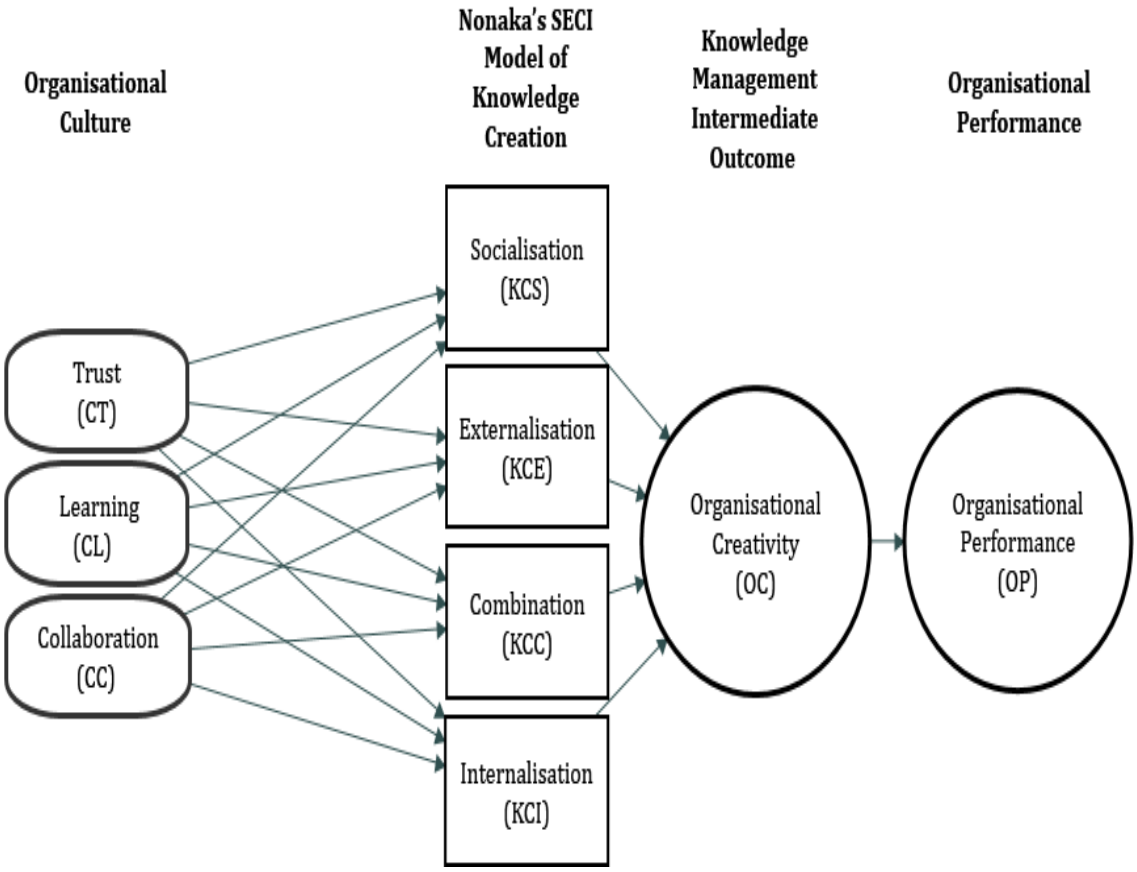
***H4c**: Combination tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

***H4d:** Internalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.*

***H5:** There is a positive relationship between organisational creativity and overall performance of the banking sector in Saudi Arabia.*

Figure 3.4 shows the conceptual model that will be evaluated based on the selected hypotheses.

Figure 3.4: The Research Model



3.11 Chapter Summary

Organisations attempt to develop their processes to reach high performance. Since there is a high level of competition between organisations and rapid changes in the business setting, organisations view knowledge management in the organisation as a base of success or failure as part of their strategy. Recently, researchers in knowledge management have directed their interest to three main factors affecting knowledge: organisational culture, the knowledge creation process, and organisational performance. In this study, organisational culture includes trust, learning, and collaboration. The research model of the study begins with combining the explicit knowledge and tacit knowledge to be implemented in the SECI model, which contains four modes of knowledge creation: socialisation, externalisation, internalisation, and combination. This chapter has set up the theoretical foundation for the study with a discussion of the connections between organisational culture, knowledge creation process, organisational creativity and performance. A conceptual model was showcased for the study and hypotheses for expected connections between the variables were produced. The next chapter explains the research methodology and the research design adopted for the study.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

One major goal of any social research is to seek meaningful knowledge. In order to be able to accomplish this all-important goal, the research strategies; the research design, the data collection and the methods of data analysis must be carefully selected, to properly address both the research questions and the research objectives (Sarantakos, 2012). This chapter, therefore, discusses the above issues, as well as the process of collecting and analysing data, plus the pilot study, sampling process and discussion of quantitative data analysis methods used.

4.2 Research Paradigm

A research paradigm involves epistemology, ontology, methodology, and techniques (Saunders et al., 2015). Every paradigm is based on its own ontological and epistemological assumptions. Ontology is the environment of reality (Hay, 2002; Holden & Lynch, 2004; Easterby-Smith et al., 2015; Saunders et al., 2015) and epistemology is the relationship between the researcher and the environment (Carson et al., 2001). The methodology is the plan of action which lies behind the particular choice of methods (Crotty, 1998: Saunders et al., 2015) and the method is the specific procedure used to collect and analyse the data (Crotty, 1998: Saunders et al., 2015). The collected data are either quantitative or qualitative. All paradigms can use either or both quantitative and qualitative data. There are various approaches to the study of management. They include realism, positivism, interpretivism, critical realism, subjectivism, and constructionism (Saunders et al., 2015). The major ontological and epistemological ideologies are interpretivism and positivism (Maylor & Blackmoon, 2005; Saunders et al., 2015).

Epistemology involves asking questions such as the following: How do we know what we know? What is a certainty? What is real learning? What is the association between the researcher and what can be known? (Saunders et al., 2015). Accordingly, epistemological guidelines lead the inquiry; by what method can one study whatever one accepts to be known? That prompts the third term which we might need to clarify—that is, system, which is a speculative and philosophical structure that dictates the way a study is undertaken (Saunders et al., 2015). Scientific research is a set of philosophical and meta-hypothetical presumptions about reality (ontology) and learning (epistemology), the standards controlling logical examination (process) and the procedures used in the study (research methods).

According to Sale et al. (2002), the ontological basis of quantitative research considers that a target reality exists which is independent of a human point of view. As positivism asserts that a phenomenon has a target reality, quantitative epistemology claims that the researcher and the subject of inquiry are free elements and, thus, the analyst can examine a phenomenon without impacting it or being impacted by it (Sale et al., 2002). The size of the sample is important for a quantitative study. A large sample size leads to better generalisability and representativeness of the research results and suggests the appropriate use of statistical techniques (Neuman, 2014).

Research philosophy provides investigators with various types of techniques that help them avoid unsuitable and irrelevant works. Research philosophy can be defined as the development of knowledge and its nature (Saunders et al., 2015). In other words, it describes how investigators think about the development of knowledge (Johnson & Christensen, 2017). There are three common research philosophies:

Positivist philosophy is grounded in a well-designed methodology that allows generality and measurable observations and analyses the outcomes with the assistance of statistical

techniques. This philosophy of research is used in natural science, and the role of the investigator is important (Saunders et al., 2015).

Interpretive philosophy considers the social area of business and management as too complex to be expressed in theories. In this research philosophy, investigators play an important function in generating final results from the gathered data. In addition, some influences, such as individuals having dissimilar social and cultural backgrounds, living standards and personalities, influence the researcher (Saunders et al., 2015).

The philosophy of realism is grounded on the interdependence of social beliefs and values. This type of philosophy emphasises the trust that really occurs in nature. This type of philosophy also describes how individuals respond to real situations (Saunders et al., 2015).

Since this study is based on a positivist paradigm and a quantitative methodology, the discussion is concentrated on these issues, with some comparisons with other paradigms. However, there is no single research technique that is better than any other (Benbasat et at., 1987), and many authors use a combination of methods to improve the value of research (Kaplan & Duchon, 1988).

4.2.1 The Positivist Paradigm

The positivist ontology assumes that the world is outside (Carson et al., 2001: Saunders et al., 2015) and there is a single target reality to any circumstance which is independent of the researcher's beliefs or viewpoint (Hudson & Ozanne, 1988). Along these lines, researchers adopt a supplementary methodology to conduct a reasonable examination of a theme, making appropriate speculations and utilising a suitable exploration system (Churchill, 1996; Carson et al., 2001). Positivist researchers stay distant from those whom they are researching by establishing a separation, which is critical to remaining sincerely impartial (Carson et al., 2001). They additionally make reasonable qualifications and

judgements in the context of the epistemological certainty. Quantitative approaches are a key to positivist research, which endeavours to accurately carry out organised research strategies to find a single target reality (Carson et al., 2001: Saunders et al., 2015). The positivist methodology is engaged in portraying connections and striving to distinguish cause and effect relationships (Creswell, 2013). This is done through experimentation and correlation studies.

Even though positivism involves attempting to simplify that which is complex by underlining and monitoring variables, a few variables may be inconspicuous and become known only once their effects are clear (House, 1991). Further, researchers may utilise inappropriate tests. For instance, if information is not normally distributed, then a nonparametric test is required. Moreover, the clarification of P-values is dependent on the significance tests of the variables or theory (Blume & Peipert, 2003). Many empirical studies in the field of management have used quantitative research to investigate the relationships among a set of variables (e.g. Alavi & Leidner, 2001; Garcia-Morales et al., 2006; Morgeson et al., 2010).

The positivist philosophy has various implications for the social sciences. The following implications are adapted from Hughes (1994):

1. The quantitative study is the basis for valid generalisations.
2. The decision of what and how to study ought to be controlled by objective standards instead of by human interests and beliefs.
3. The aim ought to be to recognise fundamental laws and causal clarifications that explain human conduct.
4. The ideas should be operationalised to enable patterns to be examined quantitatively.

5. The role of the researcher is independent of the subject under study.
6. The issues are known with certainty, whether or not they are reduced to the least complex, most observable parts.

A noteworthy aspect of positivism is the distancing of the researcher from what is being examined. However, the expectation that a researcher can make an observation without the influence of his or her opinions or values is arguably unrealistic (Gloldbart & Hustler, 2005). The present study is quantitative and analyses the associations between the dependent and independent variables, as explained in the coming sections.

4.2.2 The Relationship between Ethics and the Study

The aim of this study is to analyse KC within an organisation. The emphasis is on knowledge creation processes, such including socialisation, externalisation, combination, and internalisation. This section discusses the relationship between ethics, knowledge creation, and organisational performance. By creating positivist procedures in the field of knowledge management (KM), we can consider business ethics as the ideas which guide the organisation.

The purpose of such business morals is to improve the ethical decision-making and execution at every level of a business (Singer & Singer, 1997). Svensson and Wood (2011) proposed a theoretical system of business ethics through all sectors of an organisation regarding moral structures, moral forms, and moral execution. They argued that the execution of the proposed system throughout the organisation will help to transform structures and procedures, prompting the improvement of hierarchical capacities and the advancement of authoritative execution. Rezaiian and Ghazinouri (2010) investigated the function of ethics in the application of KM frameworks. Their outcomes suggested that there is a critical connection between ethics and the indices of the KM process, such as genuineness, individual and aggregate trust, help and compassion, protected innovation

right, duty, hard work and responsibility. A general example of KM would include sorting out problems, learning from others' viewpoints, creation, and sharing.

Given that KM often includes the conversion of tacit knowledge to explicit knowledge or the transfer of tacit knowledge among individuals, this creates intellectual property for the employer; thus, the exchange shifts proprietorship from the person to the collective (Baskerville & Dulipovici, 2006). Knowledge exists in distinctive forms which may include diverse conflicts. The conflicts can occasionally pit organisational rights to information against individual rights. These rights emerge from acknowledged human rights systems that include property rights and security rights (Baskerville & Dulipovici, 2006).

4.2.3 Ethical Implications

This study utilised a quantitative research method which is highly structured with well-defined characteristics, as discussed earlier. Quantitative research allows researchers to plan much of the research process early on. Ethics suggests a responsibility to consider what is right while undertaking the study (Chow & Drummond, 2010). The respect for research ethics guarantees that both the interests of the researcher and the participants are served, accordingly enabling a smooth research process. The ethical issues that emerged from this study are discussed below.

4.2.3.1 Confidentiality and Anonymity

Even though some studies divulge the identities of the participants, with their consent, numerous studies oblige measures to guarantee the privacy of the information gathered in the research. Ensuring the participants' security is vital in numerous studies to maintain trust in the researcher-subject relationship. The anonymity of the participants was maintained throughout the study, and the participants were informed that any data they

provided would be kept private. They were assured that the researcher would be the only person to handle the gathered information, with complete tact and secrecy, where nothing a participant said during the study would be utilised against him or her or would be employed for any purpose other than the stated research purposes. Further, all the information was stored on a password-protected computer.

4.2.3.2 Reporting Concerns

It is important that the participants are given the chance to address any concerns they may have about the study with the researcher (Chow & Drummond, 2010). Indeed, it is essential to give them the opportunity to seek clarification on an issue. Such an ethical right ought to exist before, during and even after the study. According to this moral necessity, the participants were provided with the contact information of the researcher. Consequently, the participants had the ability to effectively report any problems or concerns.

4.3 Research Design

A survey was organised among banks located in the Kingdom of Saudi Arabia to address the research questions. Two banks were chosen to take into account their involvement in some type of procedure change. The target respondents within each bank were employees involved in or acquainted with the bank's KM processes. An outline of the research design is given in Table 4.1.

Table 4.1: An Outline of the Research Design

Research Technique	**Survey** This is a suitable method to gather data at the firm level.
Level of Investigation	**Banking Operation** Participants asked to make subjective judgments about their banking operation.
Unit of Investigation	**The Bank** Respondents asked to make subjective judgments about the operational performance of their bank.
Object Respondent	**An Employee Within Each Bank** Familiar with bank's process improvement initiatives and performance
Target	**Banking Industry in Saudi Arabia** Banks are required to be efficient in KM to maintain and leverage knowledge
Banks Included	**The Riyadh Bank and the National Commercial Bank (NCB).** Banks are knowledge-intensive industries

The research design is critical, as it acts as an outline for meeting the stated study objectives. It helps the researcher reach the answers to research hypotheses and questions. In general, research design includes a sequence of logical choices, which should be rationally chosen by the researcher. These choices concern the research setting, aim of the study, unit of investigation and time horizon. In addition, decisions are made about the nature of the sample, data collection techniques and how the variables are to be analysed (Cavana et al., 2001: Saunders et al., 2015).

The SECI model offered by Nonaka and Takeuchi (1995) incorporates the environment of KM and of KC and conversion. This model was adopted in this study to analyse the

KC process and at the same time investigate the impacts on performance improvement in the Saudi banking sector. In this study approach, the research setting is domestic commercial banks in Saudi Arabia. A case study was selected because it is considered viable (Benbasat et al., 1987) for three reasons. The first reason is that the study was conducted in an area which had not previously been undertaken. The second reason is that it is critical to analyse the research problem in its authentic physical setting. The last reason is that the researcher can ask why and how, to understand the reality and complexity of the process taking place.

4.3.1 Research Procedures and Instruments

KM deepens the understanding of knowledge processes in organisations and develops procedures and instruments to support the transformation of different types of knowledge into its main constructs, from basic KC through knowledge conversion (de Carvalho et al., 2001). “Instruments used to capture information from respondents must focus on perceptual, self-reported measures of operational capabilities” (Wu et al., 2010:733). A knowledge exchange protocol, which is a process that structures information exchange between recipients of information in a systematic way, could be used to enhance the movement of TK and EK (Herschel et al., 2001).

KC is considered a central part and the first step in the cycle of implementing KM. There are several approaches, techniques and tools that can be used to "extract" EK to create new knowledge and to organise all knowledge in a systematic manner (Ceptureanu & Ceptureanu, 2010). It has been suggested that organisational capabilities are more appropriate for establishing an empirical relationship between operational practices and firm performance (Tan et al., 2007; Wu et al., 2010). Organisational performance can be improved by building operational capabilities and by implementing practices that lead to process improvement and quality management (Tan et al., 2007). All these constructs

were measured by multi-item scales based on a 5-point Likert method, and all the measures were perception-based, self-reporting survey types of instruments (Joo, 2007).

Pilot questionnaires were distributed, in order to reduce potential error sources (Salvucci et al., 1997). The survey questions were revised according to the feedback and the results of the data evaluation of the pilot questionnaires. To obtain a high response rate, the questionnaire was translated into Arabic. The final questionnaire was presented in both Arabic and English and has five sections (Appendix A): personal information of the respondents, organisational culture, knowledge creation processes (socialisation, externalisation, combination and the internalisation process), organisational creativity and bank performance (efficiency, growth, and profit).

4.3.2 Measurement Scales

The survey questions rely on existing scales for the constructs in the conceptual model. Using established scales raises the reliability of questionnaire instruments and saves effort and time (Straub, 1989). All the variables in this study including KCP, which contains the four sub-dimensions (socialisation, externalisation, combination, and internalisation) were calculated utilising existing published scales in the knowledge management literature. Multi-items measures were utilised and each item was based on five-point Likert-type scale (1=strongly disagree to 5=strongly agree). In addition, CFA was conducted using Amos v.24, and the author deletes items with factor loading values below 0.5 for all variables including KCP to be consistent with the four sub-dimensions. Furthermore, CFA was performed for removing as much common variance as possible in the first factor.

The survey asked respondents to subjectively assess their bank's KC practices and bank performance improvement. For the four modes of KC, this study adopted the work of

Anand et al. (2010), who studied the impact of KC on project performance. Anand built scales that associated process improvement to certain modes of KC. In addition, the research drew on the work of Lee and Choi (2003), who studied the knowledge management enablers, knowledge creation processes, and organisational performance. For organisational creativity, this study adopted items from Albaum, (1997); Vicari and Troilo (2000); and Lee and Choi (2003). For organisational performance, the study adopted the scale established by Murphy et al. (1996); Quinn et al. (1996); Davenport (1999); Shani et al. (2000); Lee and Choi (2003); and Wu et al. (2010). The selection of the constructs was built on a sound theoretical background and oriented to the banking sector in Saudi Arabia (see Table 4.2).

Table 4.2: The Description of Instruments used in this Study

(A) Organisational Culture (OC)

Collaboration (CC; 4 items)	**CC1:** Our bank members are supportive. **CC2:** Our bank members are helpful. **CC3:** There is a willingness to collaborate across bank units. **CC4:** There is a willingness to accept responsibility for failure.
Trust (CT; 4 items)	**CT1:** Our bank members are generally trustworthy. **CT2:** Our bank members have reciprocal faith in others' ability. **CT3:** Our bank members have relationships based on reciprocal faith. **CT4:** Our bank members have reciprocal faith in others' decision toward Bank interests than individual interests.
Learning (CL; 4 items)	**CL1:** Our bank provides various formal training programs for performance of duties. **CL2:** Our bank encourages employee to attend seminars, symposia, etc. **CL3:** Our bank provides opportunities for informal individual development other than formal training such as work assignments and job rotation. **CL4:** Our bank provides various programs such as community gatherings.

(B) Items Measuring Knowledge Creation Processes (KCP)

Socialisation (KCS; 4 items)	**KCS1:** Our bank ordinarily implements cooperative projects over directorates. **KCS2:** Our bank ordinarily utilises apprentices and guides to exchange information. **KCS3:** Our bank more often implements brainstorming retreats or camps. **KCS4:** Our bank more often adopts employee rotation across areas.
Externalisation (KCE; 5 items)	**KCE1:** Our bank generally embraces a problem-solving system based on a technology like case-based thinking. **KCE2:** Our bank generally embraces groupware and other learn coordinated effort instruments. **KCE3:** Our bank implements pointers to expertise. **KCE4:** Our bank generally implements modelling based on analogies and metaphors. **KCE5:** Our bank generally captures and exchanges experts' knowledge.
Combination (KCC; 4 items)	**KCC1:** Our bank regularly adopts web-based access to data. **KCC2:** Our bank regularly utilises web pages. **KCC3:** Our bank regularly utilises databases. **KCC4:** Our bank regularly adopts repositories of information, lessons learned, and best practices.
Internalisation (KCI; 4 items)	**KCI1:** Our bank mostly embraces on-the-job training. **KCI2:** Our bank mostly embraces learning by doing. **KCI3:** Our bank mostly embraces learning by observation. **KCI4:** Our bank usually forms teams as a model and conducts experiments and shares results with all departments.

(C) Items Measuring Organisational Creativity (OC)

Creativity (OC; 5 Items)	**OC1:** Our bank has created many novel and useful ideas (services). **OC2:** Our bank considers creating novel and useful ideas (services). **OC3:** Our bank devotes much time for creating novel and useful ideas. **OC4:** Our bank dynamically generates novel and useful ideas (services). **OC5:** Our bank adopts an atmosphere that is conducive to our own capability to create novel and useful ideas.

(D) Items Measuring Organisational Performance (OP)

Efficiency (OPE; 3 items)	**OPE1:** Our bank is typically satisfied with return on investment. **OPE2:** Our bank is typically satisfied with return on equity. **OPE3:** Our bank is typically satisfied with return on asset.
Growth (OPG; 3 items)	**OPG1:** Our bank is typically satisfied by sale growth. **OPG2:** Our bank is typically satisfied by employee growth. **OPG3:** Our bank is typically satisfied by market share growth.
Profit (OPP; 3 items)	**OPP1:** Our bank is generally satisfied by return on sales. **OPP2:** Our bank is generally satisfied by net profit margin. **OPP3:** Our bank is generally satisfied by gross profit margin.

Respondents were asked to rate their bank relative to the last year on each item. The constructs were measured by a well-established item scale developed by Sveiby & Simons (2002); it is a 5-point Likert-scale (1 = strongly disagree to 5 = strongly agree).

4.4 Piloting of the Questionnaire

The pilot study enabled the researcher to make some assessment of the questions' validity and the reliability of the information gathered and to ensure that the information gathered would enable him to answer the study questions. Neuman (2014) contends that by utilising pilot tests, the researcher increases the reliability of measurements. The goals of the pilot study were to ensure that the questionnaire was concise and clear, to evaluate the time required to finish the survey, and to ensure that the measurements revealed their expected meaning. In addition, the maximum value of the standard deviation of the pilot study was utilised in determining the sample size for the main study. The pilot study was conducted after the translated version of the survey had been finished and checked. A member of academic staff (Professor) working in King Faisal University - Research

Centre asked to participate as an expert. He reviewed the questionnaire and provided a few comments and suggestions, such as increasing the sample size to avoid a low response rate; and avoiding the confusion between innovation and organisational creativity. In addition, he suggested that a pilot study should be conducted with 40 participants (about 2% of the sample size) to validate the substance of the study instrument and to test the survey. The pilot respondents were requested to read the introductory letter, finish the survey, and give feedback, and additionally give a general response in view of their experiences. Feedback was utilised to make important adjustments to improve the survey. The randomly selected 40 participants from various branches of banks showed that the response time for the survey was roughly 23 minutes. A total of 36 returns were collected, two of which were incomplete and were discarded. The response rate was found to be 90%.

Only few of the participants provided feedback. They recommended changing some spellings and a few words and expressions to be clearer and more precise in a banking context. For instance, top management recommended that "I do not know" should be added to Q11. Also, adding "*create novel and useful ideas*" in all activities related to organisational creativity was recommended to avoid the confusion between innovation and organisational creativity. The most important recommendation from both banks was to avoid using an electronic questionnaire, but to have a paper questionnaire distributed and collected by the researcher, to improve the response rate, although it would need more effort and time. All their remarks were considered and reflected again in the English version of the survey.

4.4.1 Means, Standard Deviations and Reliability Estimates of Variables in the Pilot Study

The main variables in this study are shown in Table 4.3. In order to manage common method variance (CMV) during the research design, each item was given a code and all the items mixed and listed randomly in the distributed questionnaire (Table 4.3).

Table 4.3: Cronbach Alpha Reliability Estimates, Standard Deviations, and Means of Variables used in the Pilot Study

Code	Mean	Std. Deviation	Cronbach's Alpha	Code	Mean	Std. Deviation	Cronbach's Alpha
OC5	3.76	.923	.947	OPG1	4.59	.609	.948
OC3	3.53	.992	.947	CT3	3.82	.834	.948
CC1	3.85	.610	.948	CT4	3.56	1.209	.948
KCI3	3.88	1.066	.948	OC4	3.97	.627	.948
KCS2	3.79	1.008	.946	CL1	3.94	.952	.947
KCI1	4.03	.797	.948	OPG2	3.74	1.024	.946
KCI4	3.68	.912	.947	CL3	3.56	1.021	.946
KCS4	4.09	.753	.950	OPE2	4.09	.514	.948
KCI2	3.97	.797	.948	CL2	3.62	.888	.947
OPG3	4.68	.684	.949	KCC3	3.88	.808	.947
OPP1	4.41	.500	.949	CL4	3.82	.968	.948
CC2	3.76	.923	.948	KCS1	3.76	.923	.946
OPP3	3.88	.686	.948	KCE4	3.82	.936	.948
CT1	4.09	.621	.949	KCS3	3.41	1.048	.948
KCE3	3.76	1.075	.950	OPP2	3.88	.537	.949
CC4	3.09	1.026	.948	KCE5	3.68	1.007	.946
KCE2	3.59	.857	.946	KCE1	3.59	.988	.947
CC3	3.59	1.048	.947	OC1	4.06	.886	.947
KCC1	3.53	1.134	.947	OPE3	4.15	.784	.949
KCC2	4.00	.888	.947	KCC4	3.82	.834	.948
CT2	3.88	.808	.947	OC2	3.85	.784	.948
				OPE1	4.32	.589	.948

The reliability of a measure is the consistency of the outcomes each time the same thing is measured using Coefficient or Cronbach's alpha (Hair et al., 2010). Cronbach's alpha is an index of the internal consistency of the items and also a suitable estimate of reliability (Gregory, 2015). Reliability will be high if the items are highly correlated. Reliability values of Cronbach's alpha above 0.70 reflect acceptable reliability, above 0.80 reflect good reliability, and above 0.90 signify excellent reliability (Hair et al., 2010). Table 4.3 shows that Cronbach's alpha is for all items was more than 90%, which indicates a high level of internal consistency for the scales with this specific sample. The main conclusion reached from the pilot study was that the planned research was practicable. The outcomes of the pilot study indicated that research on organisational culture, knowledge creation, creativity and performance in the Saudi banks could be successful.

4.5 Research Population

The banking industry in the Kingdom of Saudi Arabia (SA), which is the biggest segment of the financial system in the country, has remained extremely profitable and capitalised (SAMA, 2015). The number of banks working in SA totals 24, including 12 branches of foreign banks (Joint Ventures). Banks operating in SA have in total 1,937 branches, with 47,259 employees and under the authority of SAMA (the Saudi Monetary Agency). The oldest and largest two domestic commercial banks were covered in the present study. These banks are the Riyadh Bank and the National Commercial Bank (NCB).

4.5.1 Sample Size Determination

The sample must be chosen according to accurate measures. If the sample is correctly chosen it will be adequately precise in most circumstances, and mostly a good approximation of the population. Thus, the findings can be generalised based on the sample drawn from the population. The aim of sampling is to allow investigators to

analyse an unknown characteristic of the population (Zikmund, 2003). One of the methods utilised to create implications from the sample is to use a confidence interval technique. This method emphasises the consistency of the sample mean in analysing the population mean.

Cochran (1977) utilises two variables to express the error approximation in the study: the risk the researcher is willing to take (the margin of error); and the alpha level, which signifies the willingness of the researcher to report an error made unintentionally to accept that the real margin of error exceeds the satisfactory margin of error (Bartlett et al., 2001). Although there are numerous equations within this approach, Cochran's equation is used more often (Bartlett et al., 2001). This equation is utilised to calculate the sample. All of this study's variables, organisational culture, knowledge creation processes, organisational creativity, and bank performance, are based on the five-point Likert scale. The alpha level used in calculating a sample size in most studies is either 0.05, or 0.10 (Ary et al., 1996). While there is a lack of empirical studies in KM, the majority of studies used the alpha level of 0.05 (Lee & Choi, 2003; Saarenketo et al., 2004). In Cochran's equation, the alpha level selected was combined by using the t-value (Bartett et al., 2001). According to Krejcie and Morgan (1970), the suitable margin of error is 3%. Based upon the above facts, the following equation was utilised in this study:

$$n = \frac{t^2 * s^2}{e^2} * \left(1 + \frac{2}{np}\right)$$

$$= \frac{(1.209)^2 * (1.96)^2}{(0.15)^2} * \left(1 + \frac{2}{40}\right)$$

$$= \mathbf{262}$$

Where **n** is the required sample size, and **np** is the pilot study sample size. **t** is the value for the selected alpha level of 0.05 which equals to 1.96; **e** is the acceptable error margin

for the mean being projected = 5*0.03 = 15%, where 5 is the value of the continuous five-point Likert scale (Bartlett et al., 2001); and **s** is the approximation of standard deviation of the population. To estimate the standard deviation, Cochran (1977) and Choi and Lee (2003) used the maximum standard deviation value of the pilot study. In this study 1.209 was utilised which is the highest value of standard deviation in the pilot study, as shown in the above Cochran formula in order to determine the sample size.

4.6 Data Screening and Verification

The questionnaire is assumed to provide high-quality data, and normality, reliability and validity tests are used to verify the accuracy of the empirical research (Yin, 2009) (see Tables 5.3-5.6: Chapter 5).

Data screening is essential for statistical analysis (Hair et al., 2010). This includes inspecting for distributional characteristics, missing data, and significant outliers. Significant outliers are related to normality with analysed variables. Testing data normality is critical because some estimation techniques, such as regression analysis, are based on the assumption of normality (Tabachnick & Fidell, 2007). If the data is not normally distributed, the standard error will be underestimated and the goodness of fit (R^2) statistic will be related (MacCallum, 1990). In addition, one of the basic assumptions of the estimation method will be violated. Missing data result in inflated fit statistics, biased coefficient estimates and convergent failures (Shah & Goldstein, 2006).

Standard deviation (SD) and standard error (SE) in statistical analysis are important to be screened. SD shows how well the mean represents the data, while SE shows how a sample represents the population (Field, 2013). High SD implies that the mean does not represent the data. Large SE shows that there is a variation among the means of the various samples, which implies that the sample does not represent the population.

4.6.1 Reliability

Reliability is the degree to which the questions used in the questionnaire offer the same information each time it is used under the same conditions (Treiman, 2009). There are three types of reliability: alternate forms, test re-test, and internal–consistency reliability (Miles, 2001). Most researchers investigate only internal-consistency reliability due to the practical difficulty of the two other types. The Cronbach's Alpha test is extensively used to evaluate internal consistency reliability (Treiman, 2009). A value of Alpha of 0.5 to 0.6 implies sufficient reliability (Nunnally, 1978), and with 0.7 or more implies good reliability (Hair et al., 2010).

4.6.2 Normality

The normality test is used to check whether the selected sample is random, with unknown mean and dispersion. As a rule, this test is applied before using methods of parametric statistics, which require distribution normality (Gujarati, 2002). A normality test was conducted in this present study because multiple regressions were used.

4.6.3 Validity

A validity test is about the accuracy of the measurements taken. It is primarily a matter of forming a suitable theoretical relationship between a concept and its values (Bryman & Bell, 2015). There are two major types of validity: construct and content (Sekaran & Bougie, 2010). The SECI model is shown to be logical and to have content validity. However, the validity of the constructs and scales was tested in this study (see Table 5.9: Chapter 5).

4.6.4 The Effects of Common Method Variance on Significance Testing and Parameter Bias

Common method variance (CMV) is broadly viewed as a genuine threat to the validity of results in light of self-reports (Lai et al., 2013). The bewildering impact of CMV has attracted a great deal of consideration in organisational research (e.g., Podsakoff et al., 2003; Spector, 2006; Brannick et al., 2010). CMV can be defined as the shared variance between variables because of the use of a typical estimation procedure (Spector & Brannick, 2009). Podsakoff et al. (2003) recognised four potential sources of CMV: self-report information, item context, estimation context, and item characteristics. However worries about CMV are restricted to the utilisation of a self-report survey (Brannick et al., 2010).

There are three frequently used techniques to estimate CMV. The first technique is Harman Single Factor (Harman, 1960). This technique has the advantage of straightforwardness. On the other hand, there are numerous shortcomings with this technique. For example, the sample may be liable to various sources of bias, but this method assumes a single source which possibly distorts the genuine biases; and as the number of variables increases, this technique becomes less effective (Kline, 2005). This second technique is a common latent factor which assumes no cooperation with the constructs and does not permit the investigator to embed any known or suspected causes of bias. Thus, this technique might really provide different biases, like the Harman Single Factor strategy. The third technique (common marker variable) permits the investigator to incorporate measures presumed to impact the reason of the bias itself (Lindell & Whitney, 2001). There are various advantages to this technique. Firstly, it permits estimation error to be assessed. Second, the impacts of biases are measured straightforwardly as opposed to being gathered from the model's measures (Lindell &

Whitney, 2001). Accordingly, in order to manage common method variance (CMV) during the research design, each question was given a code and all the questions mixed and used randomly when listed in the distributed questionnaire.

Factor analysis looks for common elements (common factors). The method for removing factors endeavours to take account for as much common variance possible in the first factor. Ensuing variables are, thus, proposed to represent the greatest measure of the remaining fundamental change until, ideally, no common variance remains. Accordingly, this study utilised confirmatory factor analysis (CFA). CFA is a statistical procedure utilised to confirm the element structure of a set of observed variables. CFA permits the analyst to test the hypothesis that a connection among observed variables and underlying latent variables exists. The investigator utilises empirical research and afterwards tests the hypothesis. The process of data analysis with CFA will be explained in Chapter 5.

4.7 Multivariate Analysis Methods

This section presents the procedures for examining the suggested hypotheses to answer the research questions about the relationship between organisational culture, knowledge creation processes, organisational creativity and organisational performance. This section describes the quantitative research, which used correlation, and multiple regressions in estimating the relationship among constructs. In addition, CFA was utilised to test the dimensionality as well as the validity of any measurement.

4.7.1 Factor Analysis and Latent Variables

Factor analysis is a popular research technique normally used to observe a small number of factors (also named unobserved variables or latent variables) which explains the covariance between a larger numbers of manifest variables (e.g. termed observed variables). Factor analysis has two types: Exploratory Factor Analysis (EFA) and

Confirmatory Factor Analysis (CFA). Whereas EFA is used to explore patterns in the data, the main function of CFA is to test explicitly stated hypotheses. The EFA and CFA techniques have some similarities. Both are founded on linear research models; research tests related to both methods are valid; they assume a normal distribution; incorporate latent constructs and measured variables. However, CFA and EFA techniques also have some differences for example, CFA requires specification of a model, the number of factors, which items load on each factor as well as the support of all model by previous research or theory. In contrast, no substantial constraints are imposed on data when using the EFA. Instead, it is assumed that every observed variable is impacted by every common factor while, CFA is theory-driven. It is possible to set practically significant constraints on the factor model when using CFA. The main advantage in using CFA is that it permits the test of hypotheses about a specific factor structure. Therefore, CFA was utilised in the current study and was estimated using AMOS (Arbuckle, 2016). CFA can be shown in path diagrams, in which circles signify the latent concepts and squares signify observed variables. Additionally, single headed arrows are utilised to propose a trend of hypothetical causal effect, while double-headed arrows are utilised to show covariance between latent variables.

4.7.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis, which is considered a very rigorous technique, is generally applied in the final stages of any research process while testing any theory related to latent processes (Tabachnick & Fidell, 2007). In this study, confirmatory factor analysis is used for two purposes: for testing the (a) dimensionality as well as (b) the validity of any measurement (Gerbing & Anderson, 1988; Tellefsen & Thomas, 2005; Hair et al., 2010).

(a): Testing the dimensional structure of the measurement

For measurement, constructs are typically divided into two categories, including multidimensional and single-dimensional. Single-dimensional refers to a set of measured indicators/variables having a single fundamental construct (Hair et al., 2006). For measured variables or factors to be related in a single-dimensional construct any two measured variables should have zero covariance (Hair et al., 2006). In measures which are multidimensional, the measurement of constructs is done by various related but different dimensions, each of which can be measured by a number of discrete indicators (Byrne, 2006; Hair et al., 2006). Many research practices can be utilised for analysing the dimensional properties associated with diverse measures, for example, exploratory factor analysis and coefficient alpha. However, some argue that the coefficient alpha is not a suitable technique for testing dimensionality, even though it has been utilised for this purpose in various researches (Rubio et al., 2001). The limitations of the present research methods are addressed below, with detailed discussions regarding testing through CFA the dimensional structure of the measurement.

For testing reliability or internal consistency, the coefficient alpha is generally used, according to which, when two items are utilised for measuring a construct, the correlation between items should be high (Cooper & Schilinder, 1998). Even though the coefficient alpha is essential to test internal consistency, this is not adequate for examining the dimensionality of items (Anderson & Gerbing, 1982). This is because items may be linked but multidimensional (Cortina, 1993). Uni-dimensionality should not be considered the same as the reliability (Rubio et al., 2001). Increasing the number of items of a measure tends to improve the reliability, irrespective of the dimensionality of the measure (Nunnally & Bernstien, 1994). Hence, it is possible to obtain an acceptable coefficient alpha regardless of the dimensionality of measure (Rubio et al., 2001).

For a long time, exploratory factor analysis (EFA) was utilised for testing the structure of items of a measure (Rubio et al., 2001). It enables recognition of the total number of factors in a specific scale, can as well as the items with a high weight on each factor (Field, 2013; Pallant, 2016). Nevertheless, if a construct is uni-dimensional, still there could be various factors that are composed of different items that help in defining the construct; whereas the dimensionality of measures is not tested by the number of factors utilised for measuring a construct (Rubio et al., 2001). Likewise, Hunter and Gerbing (1982:273) suggested, “EFA is a poor ending point for the construction of a uni-dimensional scale”. While one function of EFA is to combine significantly correlated items into the same construct (Pallant, 2016), variables may still be related for various reasons, apart from being measures of the same factor (Rubio et al., 2001). Although rotation and extraction in EFA give it significantly more elasticity, rotational methods such as the *direct oblimin in* SPSS allow the aspects to be related (Tabachnick & Fidell, 2007). Moreover, there are two feasible reasons behind correlation of the influence, and both lead to different conclusions. One is that factors might be highest order factors that include measures of single dimensions of another construct; another explanation for factor correlation is that outcomes of the factor represent various dimensions of a construct (Rubio et al., 2001). Moreover, using SPSS, the factors after the EFA test are normally used as variables generating composite scores of the items that are likely to measure each construct (Hair et al., 2006; Field, 2013). Although "composite score is meaningful only if each of the measures is acceptable unidimensional" (Gerbing & Anderson, 1988:186). To conclude, if a researcher fails to test the multidimensionality of a measure, this means that whether it measures two or more dimensions of a single construct, problems can occur, and it makes the evaluation of the scale inaccurate, resulting in erroneous conclusions about the measures (Rubio et al., 2001).

In view of the limitations of the use of the coefficient alpha and EFA for testing the dimensionality of measures, as discussed above. Confirmatory factor analysis (CFA) can be an alternative way of checking the dimensional structure of measures (Byrne, 2010). CFA could be utilised for building various models and assessing varying properties and factorial structure of scales (Byrne, 2010). It could also be used as a research technique in order to test relations between measured and latent variables (Hair et al., 2006; Byrne, 2010; Kline, 2011). In CFA, various models can be developed for testing the dimensionality of measures. For example, (i) all features can be allowed to correlate freely (ii) all indicators can be tested in order to examine whether they are measuring one construct (iii) they measure a single high-order construct; they might be correlated with each other (Byrne, 2010).

(b): Testing the validity of the measurement

For testing the factor loadings of the observed variables on the latent variable. Confirmatory factor analysis is an appropriate technique (Byrne, 2010). This allows the researcher to assess a construct with due respect to discriminant and convergent validity (Hair et al., 2006; Klien, 2011). Discriminant and convergent validities are discussed below.

(c): Convergent Validity

It is used in order to measure the extent of a constructive relationship between the scale items that are developed in order to measure the same construct or concept (Nachmias & Nachmias, 2007). It can simply be said that it is verified by convergent validity that measures which should theoretically relate are also linked in reality.

CFA assesses convergent validity by utilising three criteria. The first criteria on is that factor loadings should have a minimum value of 0.5. The second criteria on is that the

composite reliability should be at least 0.7. The third criteria on is that the AVE (average variance extracted) 0.5 or greater (Hair et al., 2006). The reliability of a complete set of indicators that are heterogeneous but similar in nature is measured by composite reliability, whereas Cronbach's alpha is utilised in order to test the reliability of the individual variable. Likewise, composite reliability is selected to test the reliability of a latent variable or construct. AVE provides the overall summation of the variance of the manifest variables that make up underlying constructs (Hair et al., 2006). The present study provides composite reliability as well as average variance extracted with the use of different formulas as mentioned below (Hair et al., 2006).

$$\textbf{CR} = \frac{(\text{Squared sum factor loadings for construct items})}{(\text{Squared sum factor loadings for construct items}) + (\text{Sum of the estimation error variance for a construct})}$$

$$\textbf{Average variance extracted (AVE)} = \frac{\textbf{Sum factor loadings for construct items}}{\textbf{Number of items per constract}}$$

(d): Discriminant Validity

It is concerned with the demonstration that measures do not correlate with others which no theoretical relationship can be expected. It is used to confirm that measures that are not linked theoretically are actually unrelated (Schumacker & Lomax, 2010). There are generally two ways that are available in confirmatory factor analysis for testing discriminant validity (Hair et al., 2006). One is to take two specific constructs, which can be fixed in order to have a correlation equal to one; in other words, it can be said that this is similar to identification of items that are structured as two constructs that might make just one construct. If the fit of the two-construct model is significantly different from the single construct model discriminant validity is supported (Byrne, 2010). Nevertheless, it was suggested by Hair et al. (2006) that in some situations, such models do not provide

strong evidence for discriminant validity, since a strong correlation at times as high as 0.9, can create a significant difference in the fit between two models. Therefore, a more accurate test was developed by Fornell and Larcker (1981) and Hair et al. (2006), which compares the value of average variance extracted for two constructs having squared correlation evaluations between the same two constructs. According to this test, the value of AVE ideally should be greater than the squared correlation evaluation in order to confirm the discriminant validity (see Table 5.9 – Chapter 5).

4.7.3 Correlation Analysis

The variables in this study were quantitative, having five values; thus, Pearson's correlation was used to analyse the degree to which they are linearly related (Hair et al., 2010). Correlation is a bivariate analysis that measures the strengths of association between two variables. It is used to identify aspects of the relationship among various dimensions of the constructs. The value of the correlation coefficient lies between −1 and +1. When the value is around $\pm$ 1, then there is said to be a perfect association between the variables. As the value of the correlation coefficient goes towards 0, the association between the two variables becomes weaker (see Table 6.1: Chapter 6).

4.7.4 Regression Analyses

The regression technique is the most widely used approach in the social sciences to study all kinds of dependent relationships (Tabachnick & Fidell, 2007). It is a strong methodical tool used to verify which particular independent variables forecast the variance in the dependent variable chosen by the study (Hair et al., 2010). After determining the relationships between variables and factors by the correlation analysis, it is essential to find the strength and the path of the relationship between variables. Thus, multiple regressions were used to test the hypotheses stated in Chapter 3 to forecast the relative contribution of organisational culture, knowledge creation, and organisational creativity

to performance (the outcome variable). The multiple regression in its basic form is as follows:

$$\boldsymbol{y = \ a + B_1 X_1 + \ B_2 X_2 + \cdots + B_K \ X_K + u,}$$

where y is the dependent variables, **α** is the value of y when all independent variables are equal to Zero (intercept), B_1, B_2 …, B_K are the coefficients to be estimated, X_1, X_2, … X_K are the independent variables, and u is the standard error of the estimates (Hair et al., 2010). In this study, twelve regression equations were estimated using OLS to achieve its goal.

a) Testing the Effect of Trust, Learning, and Collaboration on Knowledge Creation Processes.

$KCP = \propto + \beta_1 \ CT + \beta_2 \ CL + \beta_3 \ CC + \mu$

$KCE = \propto + \beta_1 CT + \beta_2 CL + \beta_3 \ CC + \mu$

$KCS = \propto + \beta_1 CT + \beta_2 CL + \beta_3 \ CC + \mu$

$KCC = \propto + \beta_1 CT + \beta_2 CL + \beta_3 \ CC + \mu$

$KCI = \propto + \beta_1 CT + \beta_2 CL + \beta_3 \ CC + \mu$

b) Testing the Effect of Knowledge Creation Processes on Organisational Creativity.

$OC = \propto + \beta \ KCP + \mu$

$OC = \propto + \beta_1 KCS + \beta_2 KCE + \beta_3 KCC + \beta_4 KCI + \mu$

c) Testing the Effect of Organisational Creativity on Organisational Performance.

$OP = \propto + \beta \ OC + u$

The technique of ordinary least squares (OLS) was employed to estimate the coefficients of the regression equations. This technique was chosen because it yields desirable results,

such as an unbiased estimator (Plane & Oppermann, 1977). In addition, the Statistical Package for Social Science (SPSS) was used for statistical analysis. It is essential to investigate some issues in multiple regressions, specifically testing the significant of the estimated coefficients and detecting statistical problems in multiple regressions.

The significance of the estimated coefficients. A t-test is used to find out if there is a significant relationship between the dependent variables and each of the independent variables. A low P-value (≥ 0.05) shows that the independent variable (X) is associated with changes in the dependent variable (y). The F-value is a statistical test used to determine whether the estimated model as a whole has the significant analytical capability (all the dependent variables are associated with changes in the dependent variable). To detect how well the estimated regression model fits the sample data, R^2 is used in simple regression. In multiple regression, adjusted $-R^2$ for the degree of freedom should be used (Gujarati & Porter, 2010). By adding a variable to a regression model, R^2 increases even if caused by chance alone. However, one study reported that the values of both are the same (Yang, 2007). In addition, some studies have used only R^2 in multiple regression (for example, Ogbonna & Harris, 2000).

Detecting statistical problems in Regression Analysis. Some statistical problems are associated with multiple regression models, such as serial correlation and multicollinearity. Serial correlation frequently arises when time-series data are used and the values of dependent variables are independent of each other. Multicollinearity frequently arises when time-series or cross-sectional data are used. This statistical problem relates to the case where there is a high degree of correlation among two or more independent variables. In this case, estimated regression models are incapable of splitting their individual influences because of the two independent variables act in such a similar way (Hair et al., 2010). A suitable solution is to remove one of the related variables.

However, some studies in high-ranked journals did not detect this problem (for example, Asmussen et al., 2013). The present study tested this problem when using regression analysis.

The incidence of multicollinearity raises the likelihood of mistakes in hypothesis testing (Field, 2013). The tolerance measure and the variable inflation factor (VIF) can be used for diagnosis of multicollinearity in multiple regressions (De Vaus, 2014). VIF values over 1.00 and below 10.00 imply that there is no multicollinearity problem (Tabachnick & Fidell, 2007; Hair et al., 2010). The study' results of these measures will be reported in Tables 6.4-6.9: Chapter 6.

4.8 Chapter Summary

In this chapter, the methodology used to achieve the aim of the study has been summarised and the research philosophy was explained, with various types of techniques to help in avoiding unsuitable and irrelevant works. Also, this chapter explains the research design that was used to study organisational culture and KC and their impact on performance improvement in Saudi banks. Reliability, normality and validity tests were presented to be used to verify the accuracy of the data. Also, the research population and sample were explained. This chapter identified the procedure of examining the suggested hypotheses. The next two chapters report the results from the empirical survey based research.

CHAPTER 5: SURVEY DATA ANALYSES AND FINDINGS

5.1 Introduction

The purpose of this chapter is to describe and justify the methods used in the statistical analysis of the data collected from the administration of the survey in the main phase of the research. This chapter provides the findings of the analysis of the scales used in the questionnaire to measure the concepts suggested in the research model. In addition, the evaluation of reliability and validity were executed since the evaluated measured constructs in the scales were come from past studies and had not been operationalised inside the Saudi context. Following measurement of scale reliability, CFA used to evaluate the validity of the scales and the goodness of fit.

5.2 Demographic Characteristics

Descriptive statistics concentrate on the description of information that has been gathered and introduced without testing hypotheses. The SPSS (version 24) and Amos are utilised for the analysis of the data. Overall, 262 questionnaires were distributed to the two largest Saudi banks (Riyadh and National Commercial Banks). The total number of questionnaires collected was 262, of which 48 cases had numerous missing responses. These were excluded from the analysis, consequently, 214 was the total number of questionnaires that qualified for the analysis giving a response rate of 82%. This response rate is considered reasonably high, since the questionnaire was quite long and the participants were bank employees who normally have a busy work routine.

Table 5.1 presents the demographic data gathered from the sample surveyed in the study. The highest percentage of 42.5% is for the participants aged between 23-30 followed by 41.1% for those aged between 31-40. The survey results demonstrate that the gender structure is extremely uneven. Table 5.1 shows that 98.6% of respondents were male and

1.4% were female. The huge difference between these proportions refers fundamentally to the difficulty of accessing females, due to the cultural emphasis on privacy for women in SA and the strict separation between the genders. Table 5.1 also shows that the respondents who had work experience of fewer than 5 years constituted 38.4%, followed by 36.4% for the respondents who had work experience of 5-10 years. More than a half of the respondents (50.5%) have less than a Bachelor Degree, while 43% had a BSc Degree. The majority of the participants (79.9%) evaluated the decision-making process in their bank as centralised.

Table 5.1: Respondents Characteristic (n=214)

Profile	**Category**	**Riyadh Bank Percent (%)**	**National Commercial Bank Percent (%)**	**All Respondents Percent (%)**
	<23 years	1.70	4.30	2.80
	23-30 Years	42.1	43.0	42.5
	31-40 Years	46.3	34.4	41.1
	41-50 Years	9.10	12.9	10.7
	>50 Years	0.80	5.40	2.80
	Male	94.2	93.5	98.6
	Female	5.80	6.50	1.40
	<5 Years	40.5	41.9	38.4
	5-10 Years	32.2	35.5	36.4
	11-15 Years	15.7	7.50	13.6
	>15 Years	11.6	15.1	13.6
	<BSc	52.1	48.4	50.5
	BSc	39.7%	47.3	43.0
	MS	8.30	4.30	6.50
	Centralised	81.0	78.5	79.9
	Decentralised	19.0	21.5	20.1

5.3 Preliminary Findings of Descriptive Statistics

In a statistical examination, standard deviation (S.D.) is an indication of how well the mean signifies the observed data, while standard error of the mean (S.E.) is a measure of how well a specific sample represents the population (Field, 2013). A large SD shows that the scores gather more extensively around the mean; therefore, the mean is not a good interpretation of the sample. On the other hand, a small SD indicates data points less clustered around the mean, and hence sufficiently represents the sample. Standard error (SE) show the flexibility of sample mean. A big SE means that there is a lot of deviation between the means of the various samples, which indicates that the data is a bad representative of the population. On the other hand, a small SE represents a position where sample averages are close to the population mean; thus, the sample is a good representation of the population. Table 5.2 shows the descriptive data and frequency distribution. The values of SE and SD of all variables in this study were comparatively small when matched to the means. Consequently, it can be concluded that the mean values can be utilised as a representative value for the variables in the data sample. In order to interpret the mean values of all variables estimated from the whole sample, the explanation of such means was conducted with reference to the 5-point scale structure for all variables; the values of (5) and (1) denoted the highest and lowest score, respectively. The purpose of this description is to summarise the form of the item-wise replies of the 5-point Likert scale, anchored by strongly disagree (S.D.), disagree (D), neither agree nor disagree (N), agree (A), and strongly agree (S.A.).

Table 5.2: Descriptive Data and Frequency Distribution (n=214)

Factor	Descriptive Data		Frequency Distribution (%)				
	Mean	Std. Dev.	S.D	D	N	A	S.A
Trust							
CT1	4.01	0.760	1.4	3.3	9.8	63.6	22.0
CT2	3.72	0.854	1.9	7.5	20.6	57.0	13.1
CT3	3.76	0.854	1.4	7.5	20.6	55.1	15.4
CT4	3.78	0.966	3.7	7.5	15.0	54.7	19.2
Learning							
CL1	3.89	1.004	5.6	4.2	9.8	56.1	24.3
CL2	3.51	1.095	6.5	10.7	24.8	41.1	16.8
CL3	3.58	1.083	6.1	8.4	26.2	39.7	19.6
CL4	3.40	1.165	9.8	12.6	19.2	44.9	13.6
Collaboration							
CC1	3.74	0.869	2.8	4.2	24.3	53.3	15.4
CC2	3.83	0.964	4.2	3.7	19.6	49.5	22.9
CC3	3.60	1.010	4.7	9.3	22.9	47.7	15.4
CC4	3.28	0.956	2.8	17.3	39.3	30.8	9.8
Socialisation							
KCS1	3.70	0.958	3.7	7.5	19.6	53.7	15.4
KCS2	3.63	1.030	3.7	13.1	16.4	50.0	16.8
KCS3	3.19	1.224	12.6	17.8	18.7	39.7	11.2
KCS4	3.93	0.830	2.3	3.7	13.1	60.7	20.1
Externalisation							
KCE1	3.64	0.938	2.8	6.1	33.2	40.2	17.8
KCE2	3.58	0.974	5.6	6.5	23.8	52.3	11.7
KCE3	3.71	1.025	4.7	7.5	21.5	44.9	21.5
KCE4	3.57	0.979	3.3	11.2	24.8	46.3	14.5
KCE5	3.60	1.042	4.2	11.7	21.5	44.9	17.8
Combination							
KCC1	3.51	1.099	7.5	11.7	16.4	50.9	13.6
KCC2	3.91	0.899	3.3	4.2	13.1	57.5	22.0
KCC3	3.86	0.882	1.9	6.1	17.3	53.7	21.0
KCC4	3.74	0.885	1.9	5.6	27.1	47.2	18.2
Internalisation							
KCI1	4.00	0.778	0.0	6.5	10.3	59.3	23.8
KCI2	3.87	0.899	2.3	3.7	15.0	62.1	16.8
KCI3	3.74	0.963	2.3	10.7	16.4	51.9	18.7
KCI4	3.52	0.982	6.1	8.4	22.0	54.7	8.90
Creativity							
OC1	3.99	0.899	1.9	7.0	8.4	55.6	27.1
OC2	3.84	0.905	2.3	4.7	22.0	48.6	22.4
OC3	3.55	0.962	2.8	13.1	22.9	49.1	12.1
OC4	4.01	0.784	1.9	2.8	10.3	62.1	22.9
OC5	3.58	0.983	5.1	9.3	18.7	55.6	11.2

S.D = strongly disagree, D = disagree, N = neither agree nor disagree, A = agree, S.A = strongly agree.

The descriptive statistical analysis aims to summarise patterns in the responses of a sample, usually stated in the form of frequency or mean distributions. In this case, frequency distribution was utilised to explain the level of agreement achieved from Saudi banks regarding the activities stated in the questionnaire. Regarding the trust activities, Table 5.2 shows that 85.6% of respondents agreed that the bank members are generally trustworthy. In addition, 73.9% of respondents agreed that the bank members have reciprocal faith in each other's decisions toward bank interests rather than individual interests. Concerning learning, 80.4% of respondents agreed that the bank provides various formal training programmes for performance of duties. About collaboration, 68.7% of respondents agreed that the bank members are supportive. In addition, 72.4% of them agreed that the bank members are helpful.

Concerning the socialisation activities, Table 5.2 shows that 80.8% of respondents agreed that the participating banks used a systematic plan to rotate their team across different areas and 69.1% of them agreed that their banks implemented cooperative projects over directorates. Regarding externalisation activities, 66.4% of respondents agreed that the participating banks implemented pointers to expertise and 64% of them agreed that their banks generally embraced groupware and other coordinated effort instruments. With respect to combination items, 79.5% of respondents agreed that the participating banks regularly utilised web pages, 74.7% agreed that their banks regularly utilised databases, while 65.4% said that banks regularly adopted repositories of information, lessons learned, and best practices. About internalisation activities, 83.1% of respondents thought that involving banks in joint projects could develop staff knowledge through on-the-job training, and 78.9% said that banks mostly embraced learning by doing. In addition, 70.6% of respondents agreed that their banks mostly embraced learning by observation. Regarding organisational creativity activities, Table 5.2 presents that 82.7% of respondents agreed that their banks had created many novel and useful ideas, and 85% of

them agreed that the participating banks dynamically generated novel and useful ideas (services). Additionally, 71% said that banks devoted much time to creating novel and useful ideas.

5.4 Assessing Measurement Models

The outcomes of the assessment of the measurement scales used in the questionnaire were reported in order to estimate the constructs projected in the conceptual model. Even though all variables included in these scales were derived from previous studies and an extensive literature review, estimations of reliability and validity were considered crucial, since these variables had not previously been operationalised within the Saudi Arabian context.

Reliability and validity estimation are critical devices that improve research credibility on the one side and diminish the probability of false results on the other (Winter, 2000). After evaluation of scale reliability, this study utilised confirmatory factor analysis (CFA) to evaluate the validity of the scales and test the theorised measurement models built on the sample data (Thompson, 2004).

5.4.1 Reliability

Scale reliability is important when variables created from summated scales are used as predictor factors in objective models (Santos, 1999). Reliability is described as the degree to which measures are free from error and produce consistent results (Peterson, 1994). According to Bryman and Cramer (2005), reliability is defined as the degree to which an instrument gives consistent results every time it is utilised with the same subject. To guarantee that such a group of measurement scales accurately and consistently depicted the constructs, an investigation of scale reliability was executed through an assessment of inter-total correlations and internal consistency. Internal consistency refers to the degree

to which replies are reliable across the variables within a particular measurement scale (Kline, 2005). Cronbach's Alpha remains the most widely used measure of scale reliability (Cortina, 1993). A small Cronbach's Alpha coefficient shows that items may be extremely heterogeneous, and so perform weakly in signifying the measure (Santos, 1999). Consequently, Cronbach's Alpha more than 0.70 is deemed an acceptable sign of internal consistency. The values of 0.60 - 0.70 are at the lower boundary of acceptability as proposed in the literature (Bryman & Cramer, 2005; Hair et al., 2006; Pallant, 2016).

Tables 5.3 through to 5.6 present the Cronbach's alpha for Organisational Culture (12 items), Knowledge Creation Processes (17 items), Organisational Creativity (5 items), and Organisational Performance (3 items). The values of the alpha coefficients of all the scales (37 items) ranged from 0.644 to 0.823, implying good internal consistency reliability for the scales. Consequently, the measurement scales are demonstrated to contain a set of consistent items for capturing the meaning of the constructs. Cronbach's Alpha values are, however, very sensitive to the number of items in the scale (Pallant, 2016) and also to short scales (Bryman & Cramer, 2005). When data have short scales, Cronbach's Alpha is usually low. According to Hair et al. (2006), Cronbach's Alpha is a coefficient of consistency and not a statistical test. Thus, scholars advise that analyses of the inter-total correlations should be considered (Pallant, 2016).

Item-total correlation has been utilised widely in marketing and psychology literature for the development of scales. The inter-total correlation indicates the correlation of a variable with the combined score of all variables creating that make up a constructs. Items within a measure are valuable only to the degree that they share a common construct (Nunnally, 1978). The items that correlate highly with total scores are the best variables for a general reason test (Nunnally, 1978). A value of the inter-total correlation of less than 0.30 implies that the variable is assessing something different from the construct as

a whole. (Pallant, 2016). The results of the inter-total correlations, presented in Tables 5.3 to 5.6 are consistent with the Cronbach's Alpha values and indicate that generally the items within each construct seemed to measure the same constructs as intended in the conceptual model, as their corrected inter-total items were larger than 0.30.

Table 5.3: Statistics for Reliability of Organisational Culture (OC)

Measure	Acronym	Mean	S.D.	Cronbach's Alpha if item deleted	Corrected Item-Total Correlation
Trust	CT1	4.0140	0.75978		0.403
(CT)	CT2	3.7196	0.85354		0.607
	CT3	3.7570	0.85406	0.741	0.588
	CT4	3.7804	0.96579		0.548
	Average	**3.8178**	**0.85829**		**0.537**
Learning	CL1	3.8925	1.00358		0.621
(CL)	CL2	3.5093	1.09519		0.695
	CL3	3.5841	1.08335	0.823	0.690
	CL4	3.3972	1.16530		0.589
	Average	**3.5958**	**1.08686**		**0.649**
Collaboration	CC1	3.7430	0.86904		0.431
(CC)	CC2	3.8318	0.96401		0.453
	CC3	3.5981	1.01037	0.644	0.426
	CC4	3.2757	0.95616		0.388
	Average	**3.6122**	**0.94990**		**0.425**

Table 5.4: Statistics for Reliability of Knowledge Creation Processes (KCP)

Measure	Acronym	Mean	S.D.	Cronbach's Alpha if item deleted	Corrected Item-Total Correlation
Socialisation	KCS1	3.6963	0.94759		0.571
(KCS)	KCS2	3.6308	1.02969		0.535
	KCS3	3.1916	1.22406	0.691	0.502
	KCS4	3.9252	0.83019		0.319
	Average	**3.6110**	**1.00788**		**0.482**
Externalisation	KCE1	3.6402	0.93772		0.654
(KCE)	KCE2	3.5794	0.97420		0.592
	KCE3	3.7103	1.03470	0.823	0.591
	KCE4	3.5748	0.97937		0.597
	KCE5	3.6028	1.04193		0.653
	Average	**3.6215**	**0.99358**		**0.617**
Combination	KCC1	3.5140	1.09942		0.565
(KCC)	KCC2	3.9065	0.89896		0.557
	KCC3	3.8598	0.88226	0.737	0.493
	KCC4	3.7430	0.88510		0.513
	Average	**3.7558**	**0.94144**		**0.532**
Internalisation	KCL1	4.0047	0.77821		0.425
(KCI)	KCL2	3.8738	0.81533		0.438
	KCL3	3.7383	0.96255	0.675	0.471
	KCL4	3.5187	0.98206		0.502
	Average	**3.7839**	**0.88454**		**0.459**

Table 5.5: Statistics for Reliability of Organisational Creativity (OC)

Measure	Acronym	Mean	S.D.	Cronbach's Alpha if item deleted	Corrected Item-Total Correlation
Creativity	OC1	3.9907	0.89857	0.810	0.605
(OC)	OC2	3.8411	0.90538		0.594
	OC3	3.5467	0.96179		0.614
	OC4	4.0140	0.78411		0.559
	OC5	3.5841	0.98340		0.617
	Average	**3.7953**	**0.90665**		**0.598**

Table 5.6: Statistics for Reliability of Organisational Performance (OP)

Measure	Acronym	Mean	S.D.	Cronbach's Alpha if item deleted	Corrected Item-Total Correlation
Performance	OPP	4.0701	0.62794	0.745	0.559
(OP)	OPE	4.0626	0.62059		0.600
	OPG	4.1747	0.55942		0.559
	Average	**4.1025**	**0.60265**		**0.573**

5.5 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) or exploratory factor analysis (EFA) are used depending on the purpose of data analysis. In EFA, the researcher is looking at experimental data to determine and identify terms without any pre-specified model (Suhr, 2006). Exploratory factor analysis can be applied even if there was no prior evidential substance for hypothesis creation. In fact, it would be used to estimate variable covariance. Thus, EFA is a procedure to correct and create a theory and not a method to test a theory (Hu & Bentler, 1999). In CFA, the researcher is looking for a model which explains and describes the experimental data with less restriction, based on pre-experimental information around data structures. Confirmatory methods were used in this

study for hypothesis testing and to decide whether data have a coordinated factorial structure or not (Hoyle, 1995).

5.5.1 Validity

Before conducting statistical analysis such as regression to examine the hypotheses, it is crucial to confirm whether the collected sample is fit (appropriate) for the proposed model (Thompson, 2004). Confirmatory factor analysis (CFA) was performed. The major difference between exploratory factor analysis and confirmatory factor analysis is the scheduling of the analysis. The theory is the production of exploratory factor analysis (EFA). In EFA, the findings are compared to prior research results to define the theory and theoretical factors (Hair et al., 2006). CFA is appropriately utilised when the latent variable structure is recognised (Byrne, 2001). Therefore, the CFA method has been extensively used for assessing the psychometric properties of instruments, since it examines a pre-specified factor structure and the goodness of fit of the resulting result (Anderson & Gerbing, 1988). According to Thompson (2004), CFA is more valuable than EFA in the presence of theory since the theory is completely tested by the analysis, and the model fit can be measured in different ways. In this present study, because there has been significant research evidence into the structure of knowledge management enablers, knowledge creation processes, and organisational performance, as previously deliberated in the literature, CFA was selected over EFA.

5.5.2 Model Fit Indicators

The present research used AMOS (Analysis of the Moment Structures) which is a software for SEM estimations. The AMOS output provides groups of model fit indicator: Chi-square (CMIN). The extent to which the observed matrix differs from the estimated matrix is indicated by the Chi-square value relative to the associated degree of freedom (Degree of freedom or Chi-Square). It checks the degree to which the residuals in the

matrix are nil (Bollen, 1989). Researchers are concerned with gaining non-significant values, which are lower than the tabled values with the associated degree of freedom. Because of the calculation process of Chi-square, it is sensitive to a large sample size. According to Joreskog and Sorbom (1993), the values of Chi-square increase with the sample size. For example, for a 100-300 sample size, the Chi-square value should be lower than 3 (Byrne, 2010).

Absolute fit indices.

These include the 'goodness of the fit index' (GFI), 'adjusted goodness of fit index' (AGFI), as well as Parsimony goodness of fit index (PGFI), and RMR (Root mean square residual). The term refers to a collection of measuring indices which provide a basic assessment of in how a specific model fits the sample date. The goodness of fit is not compared with another model (Hair et al., 2006; Byrne, 2010). Both GFI and AGFI range between 0 and 1, where values closer to 1 indicate a good fit. The PGFI considers the complexity (number of the estimated parameters) of the hypothesised model in the analysis of the whole model fit, along with lower values as compared to GFI and AGFI (Byrne, 2010). The last indicator in this group is the RMR. The RMR is the average residual value obtained by calculating the square root of the mean squared differences between the individual observed and estimated covariance and variance terms (Hair et al., 2006:771). According to Byrne (2010), the use of the standardized RMR value focuses on the standardized residuals. The RMR value ranges between 0 and 1; the less the value is, the better is the model fit.

Incremental fit indices.

These indices measure the efficiency of any model fit data, which is linked to the alternative models (Hair et al., 2006). They include two basic indices: the first one is the NFI (Normed fit index) while the second one is the RFI (Relative fit index). Both NFI

and RFI range from 0 to 1 with a value close to 1 indicating a better fit (Hair et al., 2006; Byrne, 2010).

Parsimony fit indices.

The group of indicators designed for providing evidence regarding which model is best in a set of competing models best are called the parsimony fit indices. These are not very effective in probing the fit of any single model. Nevertheless, they are very effective in comparing the fit of several models with different degrees of complexity (Hair et al., 2006). The criteria for these model fit indices are summarised in Table 5.7.

Table 5.7: Criteria for Model Fit Indices

Index	Criterion (critical value)
Absolute fit indices	
RMR	< 0.08
RMSEA	< 0.08 (< 0.05, fit very well; < 0.08 fit well)
GFI	> 0.90
AGFI	> 0.90
Incremental fit indices	
NFI	> 0.90
RFI	> 0.90
IFI	> 0.90
CFI	> 0.90
Parsimony fit indices	
PGFI	> 0.50
PNFI	> 0.50
PCFI	> 0.50
CN	> 200

Source: Browne and Cudek (1993), Hu and Bentler (1999), Byrne (2010).

5.6 Validating the Measurement Model using CFA

Before assessing hypothesised relationships among four sets of constructs, it was first essential to validate the constructs. Construct validity refers to the degree with which a measured indicator truly reflects the latent theoretical construct it is designed to measure (Hair et al., 2006:776).

CFA is the appropriate instrument which is used to evaluate the construct validity of recommended measurement methods (Hair et al., 2010) quantitatively. Various researchers argued that the CFA should be used in order to explore whether there exists empirical support for the hypothetical factor structure of the variable or not. CFA presents quantitative measures that assess the construct reliability and construct validity of the theoretical model (Hair et al., 2010).

Following the recommendation of Hair et al. (2010), the phases of validating the measurement model were accomplished in the following order:

i. Classification of measurement theory;

ii. Building measurement model for four-dimensional measurements structures for sets of three and six constructs; and

iii. Accomplishing evaluations of the measurement model for overall fit and examining the validity and reliability of the constructs utilising CFA.

The measurement model holds six constructs, which include the four knowledge creation process constructs (socialisation, internalisation, combination, and externalisation), organisational creativity, and organisational performance as a dependent variable. Every construct consists of multiple indicators. The model has four sets of constructs, including the knowledge creation process (with four constructs), organisational creativity, organisational performance and organisational culture (with three constructs). The

hypothesised relationship between the above-mentioned four constructs was proposed in Chapter 3. To decide whether hypothesised relationships occur between the four constructs types, this model was evaluated, as described in the following sections.

5.7 Measurement Theory

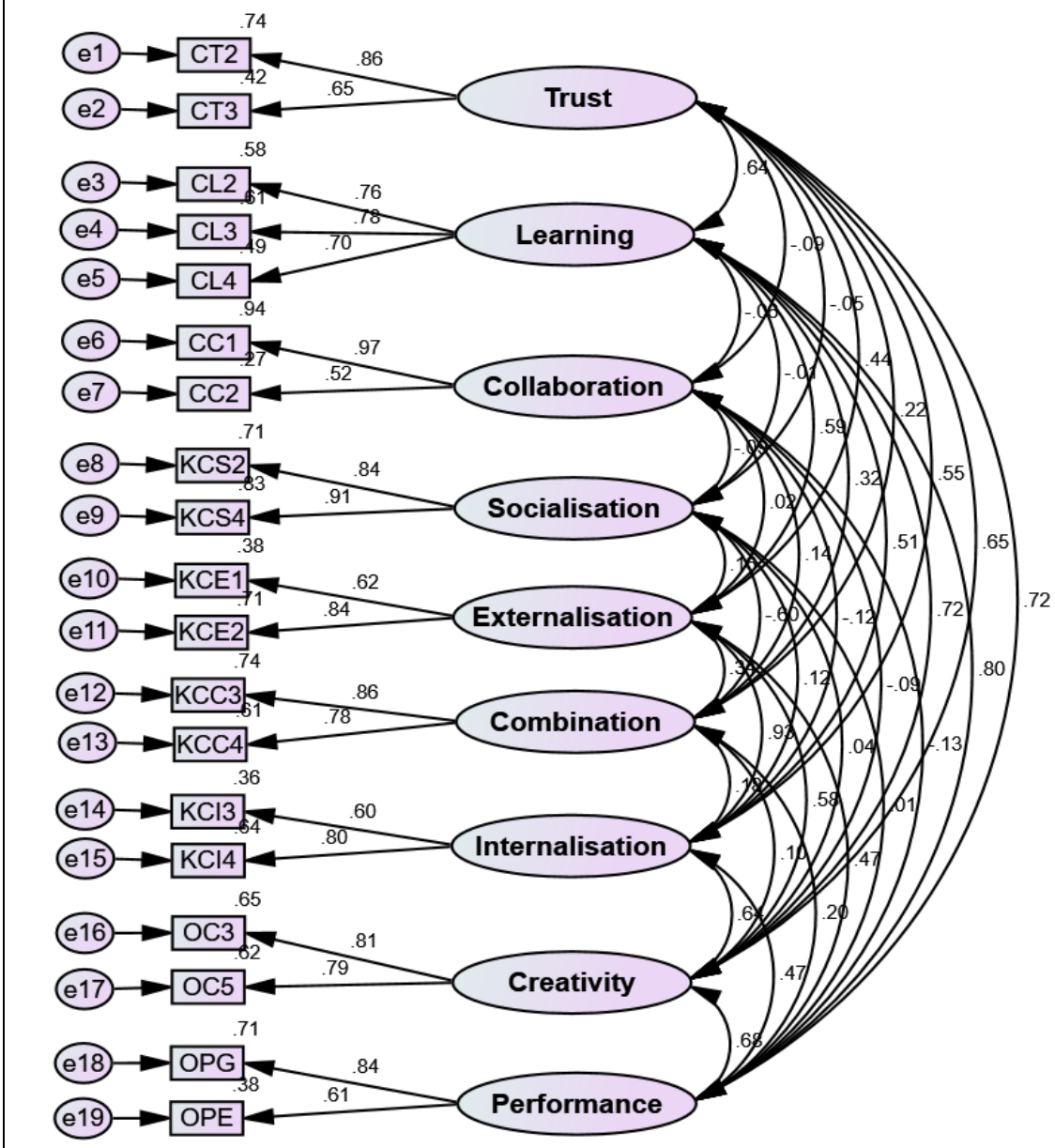
Commonly, two sets of measurement theories are applied in planning a CFA model, formative measures theory and reflective measures theory (Hair et al., 2010). In this research model, nine sets of latent constructs possess path estimates that describe the relations among variables, identical to beta scales in regression analysis. The measured variables are represented by factor loadings described as standardized regression weights in AMOS in order to match to the relations from constructs to variables as in factor analysis. In this study, all items are the reflection of constructs and arrows are drawn from the latent construct to the measured items; all items of the constructs reflect a common conceptual base, all items of the constructs highly co-vary with each other, and all items of the constructs relate to each other in a similar way. In addition, the trend of the relations from constructs to variables also causes an error term that is the direct result of the inability of the construct to explain the items. Thus, the reflective measures theory was utilised in planning a CFA model in this study (Hair et al., 2010).

5.7.1 Constructing the Measurement Model

Figure 5.1 illustrates a nine-construct measurement model comprising organisational culture (trust, learning, and collaboration), the process of knowledge creation (socialisation, internalisation, combination, and externalisation), organisational creativity, and organisational performance. Measured variables are presented as boxes with labels identical to those indicated in the survey. Latent constructs are elliptical. An error term is held by all measured variables. A two-headed arrow represents covariance present between constructs, whereas single-headed arrows indicate causal pathways from

construct to indicator without any cross loading. The supposition of no cross loading made because the presence of significant cross loading is evidence of an absence of uni-dimensionality and hence, the absence of construct validity, that is, discriminant validity. Nevertheless, in the measurement model, two-headed correlation/covariance is shown by all arrows between constructs (Hair et al., 2010).

Figure 5.1: AMOS Path Diagram of Re-Specified Frist Order CFA Estimates



Note: organisational culture = (trust, learning, and collaboration), knowledge creation process (SECI) = (socialisation, externalisation, combination, and internalisation), organisational creativity, and organisational performance. (n=214)

The AMOS path illustrated in Figure 5.1 contains a total of 47 (19 observed + 28 unobserved) variables. More specifically, the 19 observed variables are 8 knowledge creation process items + 02 trust items + 03 learning items + 02 collaboration + 02 organisational creativity + 02 organisational performance items, the 28 unobserved variables include 19 error terms + 9 factor variables, there are 28 exogenous variables (19 error terms + 9 factors) and 19 endogenous variables (19 observed variables). According to Tabachnick and Fidell (2007), if there are only two items for a variable, the model may be identified if there are no correlated errors, each item loads on only one variable, and none of the variances or covariances among variables is equivalent to zero. To accomplish an over-identified model, the first regression path in each measurement component was fixed at 1. Subsequently, this model contains 214 data points and 74 distinct parameters to be estimated. It indicates that the model is over-identified with 116 degrees of freedom.

After constructing the measurement model, based on the result of initial model fit results, the items with low factor loadings and corresponding low squared multiple correlations were deleted. According to Hair et al. (2010:725), factor loadings below the suggested cut-off value (0.5), are candidates for deletion from the model. The total of their modification indices and standardized residual covariance terms were determined to make these paths absolute for testing CFA measurement model. In the next step, the revised measurement model was run with only those items that were produced in the initial model. As indicated, the AMOS path diagram of re-specified first order CFA comprises a total of 47 variables (19 observed + 28 unobserved). The assumption is that all indicators in a reflective construct must be caused by the same latent construct and must be highly interrelated with each other (Hair et al., 2006).

In theory, single items are interchangeable and any individual item can be ignored without changing the construct, therefore, two conditions must be met: first, the construct must

have sufficient reliability and second, a minimum of three items should be specified to avoid a model identification issue in all latent constructs. Thus, items with low factor loading can be rejected in a reflective model without serious consequences as long as the correlating construct contains an adequate number of indicators (Hair et al., 2006).

As described above, the author has constructed the measurement model, then verified and revised constructs of organisational culture (trust, learning, and collaboration), knowledge creation process (SECI) (socialisation, externalisation, combination, and internalisation), organisational creativity, and organisational performance by dropping the items with low factor loadings using standardized regression estimates and modification indices. To achieve an evaluation of the measurement model, Maximum Likelihood Estimation (MLE) was used for model fit with the output of minimization history; standardized regression estimates, squared multiple correlations, and modification indices.

5.7.2 Overall Measurement Fit Indices

The results presented in Table 5.8 show selected model fit statistics from the CFA measurement model output. The literature proposes that for model fit, as a minimum one absolute fit index and one comparative fit index is required, in addition to χ^2 results (Hair et al., 2010). Based on the results in Table 5.8, key fit indices including χ^2 measures, absolute fit indices, comparative fit indices, predictive fit indices and parsimonious fit indices are discussed below. The CFA output consists of many fit indices. This study tested key fit indices, which include χ^2 statistics, the CFI and the RMSEA to provide an evaluation of fit. In addition, other tests were utilised and discussed.

Table 5.8: Overall Fit Indices – CFA Measurement Model		
Model Fit Indices	Model Fit Results	Model Fit Threshold
Chi-square (x^2)	186.846	Smaller the better
Degrees of freedom	116	Smaller the better
Significant p-value	0.000	>0.05
Absolute Fit Indices		
Normed Chi-square (Ratio of χ^2 to df)	1.611	<5.0
Root Mean Residual (RMR)	0.025	<0.080
Root Mean Square Error of Approximation (RMSEA)	0.054	<0.080
Goodness of Fit Index (GFI)	0.917	>0.90 for acceptance
Adjusted Goodness of Fit Index (AGFI)	0.865	>0.90 for acceptance
Browne Cudeck Criterion (BCC)	350.182	Smaller the better
Comparative Fit Indices		
Comparative Fit Index (CFI)	0.956	>0.90 for acceptance
Tucker-Lewis Index (TLI)	0.935	>0.90 for acceptance
Incremental Fit Index (IFI)	0.957	>0.90 for acceptance
Normed Fit Index (NFI)	0.895	>0.90 for acceptance
Relative Fit Index (RFI)	0.845	>0.90 for acceptance
Predictive Fit Indices		
Akaike Information Criterion (AIC)	334.846	Smaller the better
Expected Cross-Validation Index (ECVI)	1.572	Smaller the better
Parsimonious Fit Indices		
Parsimony-Adjusted (PNFI)	0.607	Very sensitive to model size
Parsimony-Adjusted (PCFI)	0.648	

Source: Browne and Cudek (1993), Hu and Bentler (1999), Byrne (2010).

Table 5.8 displays the model fit outcomes of the CFA measurement model. The overall value of the model chi-square is (χ^2 =186.846) with about 116 degrees of freedom. Probability levels are statistically significant at (χ^2 (116, N=214) = 186.846, p<0.000), which indicates that the model perfectly fit data in the population at this probability level and it suggests that the proposed model is consistent with the observed data. With a large, complicated sample with various variables and different degrees of freedom, like this sample, the chi-square observed will usually be quite significant, even if there exists good fit in the data. As a result, the chi-square statistic is utilised more as a descriptive index of the fit as compared to a statistical test. In order to make it less dependent on sample measurement and complexity, normed chi-square is used, which is the ratio of the chi-square fit index divided by degrees of freedom. Normalised chi-square, i.e. (χ^2/df) is encouraged as a measure of model fit due to the fact of the sensitivity of the χ^2 to complexity and measurement of the sample (Kline, 2005).

The Normed Chi-square was (186.846/116 = 1.611). A value lower than 2.0 is considered quite good and between 2.0-5.0 is considered as satisfactory. The case in which normed chi-square has value 1.611 show quite a good fit.

In the absolute fit indices, root mean square errors of the approximation (RMSEA) refers to (BOF) badness of fit measure. According to Hair et al. (2010) by the recommendations provided in terms of absolute fit indices and the RMSEA provides a reasonable measurement of fit. The value of the RMSEA of nearly 0.05 or lower indicates near fit of the model with reference to the degrees of freedom (Browne & Cudeck, 1993). Although it is based on individual judgments, and this cannot be considered as correct or infallible, this is more rational as compared to the condition of the precise fit along with RMSEA = 0.0. In this setting, a value of around 0.08 or less for the RMSEA would show a reasonable error of approximation and any researcher would not want to employ a model with RMSEA greater than 0.1 (Browne & Cudeck, 1993). Hence, researchers propose that a

value of RMSEA 0.08 lower would show an acceptable model fit. Moreover, models having an error value lower than 0.05 show excellent fit (Joreskog & Sorbom, 2001). Hair et al. (2010:721) suggest that the cut-off value of RMSEA should be <0.070 for a sample of the size and with the number of observed variables there are in this research. The RMSEA is an absolute fit index and the result in the present model is 0.054. The value presented here is well below the cut-off line of 0.070, which is set by Hair et al. (2010) and also the value of 0.080 set by Cudeck and Browne (1993). Hence, RMSEA provides further support for the model fit.

The RME (Root Mean Square) actually is a badness of fit (BOF) index. In other words, this is the difference between predicted and observed correlation. Therefore, a smaller RMR is better. A zero RMR value indicates a perfect fit. In Table 5.8, the results indicate an RMR value of 0.025 which is significantly lower than the cut-off value 0.080, and therefore, RMR provides further support for the model fit. In conclusion, it can be said that absolute fit indices RMR and RMSEA, both signify quite a good model fit of the measurement model. Moreover, Table 5.8 also presents other results of absolute fit indices. It was found that AGFI = 0.865, BCC = 350.182 and GFI = 0.917, which indicates that the measurement model fits quite well with the data.

Considering the incremental fit indices, the comparative fit statistics (CFI) is a key to the goodness of fit of a measure, and the incremental fit index is used quite extensively (Hair et al., 2010). The CFI is related to inconsistency, non-centrality parameters, baseline model and degree of freedom. The CFI is quite close to McDonald and Marsh's (1990), relative to the (RNI) non-centrality index, apart from the fact that CFI is constrained to fall between 0-1. Values closer to 1 CFI indicate a good fit. Nevertheless, CFI values lower than 0.90 are generally not associated with a model which fits well (Hair et al., 2010). The CFA model shows the value of CFI was 0.956, which is higher than the cut-off limit of 0.90 provided by Hair et al. (2010) for a model of similar sample size and

complexity. Four other linked incremental fit indices; the Tucker-Lewis index, Normed fit index, Relative fit index and Incremental fit index showed values of 0.935, 0.895 0.845 and 0.957 respectively. Thus, two are higher than the cut-off line of 0.90, while the other two are close to or less than the recommended value of 0.90 (Hair et al., 2010). Therefore, reasonable evidence of good fit of the measurement model is provided by the five incremental fit tests.

Moreover, two predictive fit indices, ECVI = 1.572 and AIC = 334.846 also demonstrate the good fit to the data. It is evident in Table 5.8 that two parsimonious fit indices, PCFI = 0.648, and PNFI = 0.607, indicate that the hypothesised model fits the data quite well.

In conclusion, the goodness of fit measures including TLI, CFI, IFI, RFI NFI, and the factor loadings were within acceptable ranges, and six BOF measures including normed Chi-square, RMR, GFI, BCC, AGFI, and RMSEA were also acceptable. Additionally, there are two parsimonious fit indices and predictive fit indices, which indicate the marginally acceptable fit of the hypothesised model. Hence, the CFA result suggests that the present measurement model provides good model fit and it is suitable for proceeding towards further tests of the construct validity of the model.

In the present section, the results of the main validity test of the overall fit of the measurement model are provided. In the following, the result and analysis of the measurement model of validity scale along with the convergent and discriminant validity results are summarised. The validity and reliability are measured by calculating composite reliability and average variance extracted (AVE). The results in Table 5.9 show items, the standardized regression weights (factor loadings), average variance extracted (AVE), composite reliability (CR), and discriminant validity (DV) estimates.

Table 5.9: Factor Loading, AVE, CR and DV Analysis						
Items	**[a]Standardized Regression Weights (Factor Loading)**	**[b] R^2 / SMC Item Reliabilities**	**[c] Measurement Error**	**[d]AVE (%)**	**[e] CR**	**[f] DV**
Trust						
CT2	0.860	$0.860^2 = 0.740$	1 – 0.740 = 0.260	58%	0.61	0.58 > 0.48
CT3	0.647	$0.647^2 = 0.419$	1 – 0.419 = 0.581			
Learning						
CL2	0.763	$0.763^2 = 0.582$	1 – 0.582 = 0.418	56%	0.68	0.56 > 0.44
CL3	0.780	$0.780^2 = 0.608$	1 – 0.608 = 0.392			
CL4	0.698	$0.698^2 = 0.487$	1 – 0.487 = 0.513			
Collaboration						
CC1	0.972	$0.972^2 = 0.945$	1 – 0.945 = 0.055	61%	0.65	0.61 > 0.09
CC2	0.520	$0.520^2 = 0.270$	1 – 0.270 = 0.730			
Socialisation						
KCS2	0.841	$0.841^2 = 0.707$	1 – 0.707 = 0.293	77%	0.84	0.77 > 0.09
KCS4	0.910	$0.910^2 = 0.828$	1 – 0.828 = 0.172			
Externalisation						
KCE1	0.715	$0.715^2 = 0.511$	1 – 0.511 = 0.489	61%	0.66	0.61 > 0.49
KCE2	0.845	$0.845^2 = 0.714$	1 – 0.714 = 0.286			
Combination						
KCC3	0.859	$0.859^2 = 0.738$	1 – 0.738 = 0.262	67%	0.73	0.67 > 0.60
KCC4	0.779	$0.779^2 = 0.607$	1 – 0.607 = 0.393			
Internalisation						
KCI3	0.796	$0.796^2 = 0.634$	1 – 0.634 = 0.366	64%	0.69	0.64 > 0.45
KCI4	0.803	$0.803^2 = 0.645$	1 – 0.645 = 0.355			
Organisational Creativity						
OC3	0.805	$0.805^2 = 0.648$	1 – 0.648 = 0.352	63%	0.69	0.63 > 0.58
OC5	0.787	$0.787^2 = 0.619$	1 – 0.619 = 0.381			
Organisational Performance						
OPE	0.713	$0.713^2 = 0.508$	1 – 0.508 = 0.492	61%	0.65	0.61 > 0.47
OPG	0.840	$0.840^2 = 0.706$	1 – 0.706 = 0.294			

[a] Standardized regression weights (factor loading) for component factors (i.e., socialisation, externalisation, combination, and internalisation).

[b] Item reliabilities are the squared multiple correlations value of each of the factor loadings, e.g., item reliability of KCS2 = $0.841^2 = 0.707$.

[c] The measurement error is also referred to as the standard error variance. Here, the delta is calculated as 1 minus the squared factor loading (or item reliability), e.g., the KCS2 delta is 1 – 0.707 = 0.293.

[d] AVE estimates the average amount of variation that a latent construct is able to explain in the observed variables to which it is theoretically related.

[e] Composite Reliability (CR) is able to calculate by squaring the sum of factor loading divided by the sum of factor loadings plus the sum of standardized error variance (the sum of the variance due to random measurement error for each loading.

[f] Discriminant Validity (DV) is supported if variance extracted estimates better than the shared variance (squared correlation estimate).

Table 5.9 presents all the model fit values, which support the validity of the four domains of the knowledge creation process theory. Three domains, organisational culture, organisational creativity, and organisational performance items reflect the knowledge creation process in the Saudi banking industry. The standardized factor loading estimates of this model can be utilised to assess the relative contribution of each indicator variable (Arbuckle, 1995:44).

According to the recommended threshold values of Kline (2011) path coefficients ≥ 0.10 have a low influence, path coefficients ≥ 0.30 have an average influence, and path coefficients ≥ 0.50 have a high influence. The path coefficients of the items confirmed that the measures model sufficiently explained the sample data in the Saudi banking sector.

To evaluate the convergent validity, the author used the widely utilised method generally referred to as the average variance extracted (AVE). The AVE measures the overall extent of variance in the items that is accounted for by the latent construct (Hair et al., 2010). As presented in Table 5.9, the AVE value for KCS is 0.77. It means that 77% of the variance

is explained by the KCS construct. According to Fornell and Larcker (1981), variables must show estimates of greater than 0.50. Thus, for the four domains of the knowledge creation scale, the AVE values (i.e. KCS = 0.77, KCE = 0.61, KCC = 0.67 and KCI = 0.64) show an acceptable fit. Consequently, AVE strongly confirms convergent validity.

Table 5.9 also shows the composite reliability (CR) results of the nine latent variables involved in the model and also indicates CR of seven constructs >0.6 indicating an acceptable level of reliability of constructs as proposed by Fornell and Larcker (1981). All the CR values meet that minimum acceptable level of 0.60 and another two constructs are above >0.7, showing high in the reliability of constructs. The high construct reliability shows that internal consistency exists and the measures consistently represent the same latent construct.

Discriminant Validity (DV) is supported if variance extracted estimates are greater than the squared correlation (Hair et al., 2006). According to Hair (2006), discriminant validity is the extent to which a construct is actually distinct from another construct. The key feature of discriminant validity is that separate items must represent exactly a single latent construct without having cross-loading. Therefore, any indication of cross-loading points to a discriminant validity issue. The strict test of discriminant validity is by comparing the AVE for any two constructs with the square of the correlation between them. To measure the discriminant validity of the construct, AVE values were used. Discriminant validity is able to support the construct if AVE estimates are better than the square of the inter-factor correlation (Fornell & Larcker 1981). In this study, the AVE shown is larger than any squared inter-construct correlations of each construct, which significantly supports discriminant validity. Furthermore, all correlations support the discriminant validity. Then, estimated correlations amongst constructs are less than or very close to the suggested value of 0.85 (Kline, 2005), which also confirms discriminant validity.

Consequently, the accepted measurement model displays discriminant validity and does not feature any cross loading between measured factors.

5.8 Summary of Evaluation of Measurement Model

In the foregoing sections, the researcher has confirmed the validity of the measurement model of four sets of constructs using CFA by drawing the measurement model with the nine constructs, evaluating the goodness of fit by performing CFA on the data and analysing and evaluating the reliability and construct validity of the measurement model. Moreover, the empirical results suggest a 4-set construction of the model comprising 9 constructs (3 constructs of organisational culture as independent variable and 4 constructs of the knowledge creation process as the dependent variables). The four processes of knowledge creation as the independent variables and organisational creativity as the dependent variables and organisational creativity as the independent variables and organisational performance as the dependent variables provides the best fit for the data, supporting a four-dimensional measurement structure. As a result, the measurement model shows a reasonable fit for the data collected in the target population. Thus, this model can be used for all subsequent analysis and hypothesis testing.

After successful evaluation of the measurement model through CFA, in the next stage of data analysis, the evaluation and investigation of hypothesised relationships between the four sets of constructs were performed using regression analysis, as explained in the methodology chapter.

5.9 Chapter Summary

This chapter reviews some aspects related to the preparation for statistical analysis. Respondents' demographic characteristics were assessed. Also, the descriptive data and frequency distribution results were presented in order to summarise the form of the item wise replies of the 5-point Likert scale anchored by strongly disagree (S.D.), disagree (D), neither agree nor disagree (N), agree (A), and strongly agree (S.A.). In addition, CFA has been performed for all the research instruments to get their factor loadings. The goodness of fit (GOF) measures CFI, TLI, IFI, NFI, RFI and Factor loading were all found to be in the acceptable range and six badness of fit (BOF) measures Normed Chi-square, RMSEA, RMR, GFI, AGFI and BCC were also acceptable. In addition, convergent and discriminant validity and composite reliability were analysed. This type of analysis helps to determine which items should be incorporated for further analyses. The results of this chapter allow testing of the hypothesised relationships between the constructs. In the following chapter, the statistical methods of the Pearson product moment correlation and linear multiple regression analysis will be utilised to examine the research hypotheses.

CHAPTER 6: SURVEY RESULTS: TESTING THE THEORETICAL HYPOTHESES

6.1 Introduction

The most important part of the research study is the right choice of methodology (Davis, 1996; Stevens, 2002). Multiple regressions are appropriate for measuring constructs and relations between them. The aim of regression analysis is prediction, while the intention of a correlation analysis is to assess the relation between the independent variables and dependent variables (Tabachnick & Fidell, 2001).

According to the above discussion, this chapter explains the procedures for investigating the proposed hypotheses to address the research questions about the relationship between organisational culture, knowledge creation processes, organisational creativity and organisational performance. The chapter includes the exploratory study, which utilised correlation and multiple regression analyses in examining the relationships among constructs. The purpose was to show if these constructs were related with each other and whether these relations were strong enough.

6.2 Correlation Analysis

The items of this present study were empirical, having five values. Thus, the statistical methods of the Pearson product moment correlation were used to establish the degree to which the variables were linearly related (Weinberg & Goldberg, 1990). The Pearson correlation coefficient takes a value from -1.0 to +1.0. The value provides a sign of the power of the relationship. Correlation coefficients of -0.50 or +0.50 and -1.0 or +1.0 indicate moderate and perfect correlation, respectively (Pallant, 2016). However, in behavioural science research, where complex behaviours are studied, correlations of 0.20 to 0.30 are regularly considered significant (Jaccard & Becker, 1997). In Table 6.1, the

correlation analysis shows positive and highly significant associations among all variables at the 0.01 level (2-tailed). It indicates that a positive change in one variable will cause a significant rise in other variables. If trust, learning, collaboration, and knowledge creation processes are satisfactory, the performance of the organisation will be greater. It is worth mentioning that the variables are not highly correlated (less than 0.7) and only KCC and CL reached 0.702. In addition, the detection of multicollinearity performed before using regression analysis.

Table 6.1: Correlation Matrix

Variable	CT	CL	CC	KCS	KCE	KCC	KCI	OC	OP
CT	_								
CL	.576***	_							
CC	.602***	.535***	_						
KCS	.443***	.461***	.470***	_					
KCE	.557***	.673***	.486***	.503***	_				
KCC	.578***	.702***	.518***	.477***	.680***	_			
KCI	.579***	.535***	.503***	.514***	.598***	.460***	_		
OC	.570***	.561***	.605***	.540***	.608***	.481***	.655***	_	
OP	.563***	.602***	.551***	.483***	.595***	.645***	.421***	.499***	-

*** Correlation is significant at the 0.01 level (2-tailed).
Note: CT = Trust, CL = Learning, CC = Collaboration, KCS = Socialisation, KCE = Externalisation, KCC = Combination, KCI = Internalisation, OC = Organisational Creativity, and OP = Organisational Performance. (n=214)

6.3 Hypothesis Testing

After finding the relationships between factors and variables by correlation analysis, it is essential to recognise the strength and the direction of the relationship between variables for testing the hypotheses specified in Chapter 3:

H1: The presence of high trust is positively related to the level of creativity through KCP in the Saudi banks.

H2: The presence of activities involving learning is positively related to the level of creativity through KCP in the Saudi banks.

H3: The presence of organisational members with high collaboration is positively related to the level of creativity through KCP in the Saudi banks.

H4: KCP positively contributes to the level of performance through creativity in the Saudi banks.

H4a: Socialisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.

H4b: Externalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.

H4c: Combination tactics positively contribute to the level of performance through creativity in the Saudi banking industry.

H4d: Internalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.

H5: There is a positive relationship between organisational creativity and overall performance of the banking sector in Saudi Arabia.

6.4 Testing the Underlying Assumptions for Multiple Regression

The essential issue is whether in the line of estimating the coefficients and predicting the dependent variable (D.V.); the underlying assumptions of the regression method have been met, by testing those (Berenson et al., 2015). These assumptions are normality, linearity, multicollinearity, and homoscedasticity. A brief discussion of these assumptions will be presented. When the data do not meet the above assumptions, they must be transformed before using multiple regression techniques.

6.4.1 Normality

Normality assumes that the dependent and/or independent variables are normally distributed (De Vaus, 2002). It is the most important assumption in multivariate analysis (Hair et al., 2010). Failure of the normality assumption can result in unstable regression estimates (De Vaus, 2002). Normality of dependent and independent variables is tested by graphical analyses or statistical methods. Skewness and kurtosis are important elements of normality (Tabachnick & Fidell, 2007). Hypothetically, when a distribution is perfect, the value of skewness and kurtosis are zero. For a distribution to be considered normal, both skewness and kurtosis of the distribution should fall between -2.00 to +2.00 (Garson, 2009). Since the sample size of the study is large enough (more than 100), failures of normality will not have much effect. Consequently, it is acceptable to assume normality in the dependent and independent variables. The skewness and kurtosis values of the study constructs are presented in Table 6.2. The results showed that the data set are normally distributed with skewness and kurtosis values ranged from -0.966 to - 0.589 and from 0.203 to 1.512, respectively.

Table 6.2: Normality Statistics Test

Variable	Skewnes Statistic	Kurtosis Statistic
CT	**-.873**	**1.200**
CL	**-.837**	**0.788**
CC	**-.589**	**1.318**
KCS	**-.637**	**0.203**
KCE	**-.685**	**0.389**
KCC	**-.913**	**1.512**
KCI	**-.730**	**0.956**
OC	**-.966**	**1.432**

6.4.2 Multicollinearity Statistics Test

Multicollinearity refers to a strong correlation between the independent variables (Hair et al., 2006). The incidence of multicollinearity endangers the internal validity of multiple regression studies and raises the likelihood of errors in hypothesis testing (Field, 2013). The detection of multicollinearity in multiple regression analysis is by two statistical tests. These tests are the variance inflation factor (VIF) and tolerance measure (De Vaus, 2014). The values of the VIF and tolerance measure are satisfactory if they are less than 10 and more than 0.1, respectively (Tabachnick & Fidell, 2007).

Table 6.3 provides the values for tolerance and VIF extracted from the multiple regression analyses. The values of tolerance are satisfactory as they are all more than 0.1. In addition, the values of VIF are acceptable since they are smaller than 10. Tolerance and VIF values range from 0.332 to 0.631 and from 1.584 to 3.016, respectively.

Table 6.3: Co Linearity Statistics of Trust, Learning, and Collaboration vs. Knowledge Creation Process and Knowledge Creation Processes vs. Organisational Creativity

Dependent variable	Independent Variables	Tolerance	VIF
Knowledge Creation Process (KCP)	Trust (CT)	0.631	1.584
	Learning (CL)	0.614	1.629
	Collaboration (CC)	0.585	1.710
Organisational Creativity (OC)	Socialisation (KCS)	0.341	2.934
	Externalisation (KCE)	0.332	3.016
	Combination (KCC)	0.463	2.162
	Internalisation (KCI)	0.447	2.238

6.4.3 Linearity and Homoscedasticity

Linearity refers to a straight-line relationship between dependent and independent variables (Hair et al., 2006). If the relationship between independent variables and the dependent variable is not linear, the outcomes of the regression analysis will underestimate the true association. A desirable technique of detection is an inspection of residuals by plotting of the standardized residuals as a function of standardized predicted values (Tabachnick & Fidell, 2007).

Homoscedasticity assumes that the dependent variables show equal variance across the variety of independent variables (De Vaus, 2014). A significant assumption of the classical linear regression model is that the errors are homoscedastic. They all have the same variances, if the variance is varying from observation to observation, then we had the case of heteroscedasticity (unequal variance). The standard method for detecting the presence of homoscedasticity is to inspect residual plots for actual standardized values (ZREDID) against predicted residuals values (ZPRED) (De Vaus, 2014).

Figures 6.1 and 6.2 show the scatter plot of organisational culture vs. knowledge creation process (KCP) and the plot of regression standardized residuals, respectively. The residuals were found to be randomly and consistently dispersed through the scatter-plot. The pattern of the residuals is related to the null plot, which specifies that the assumptions of linearity and homoscedasticity for the organisational culture with the knowledge creation process (KCP) are met (Hair et al., 2010).

Figure 6.1: Scatter Plot of Organisational Culture vs. Knowledge Creation Process (KCP)

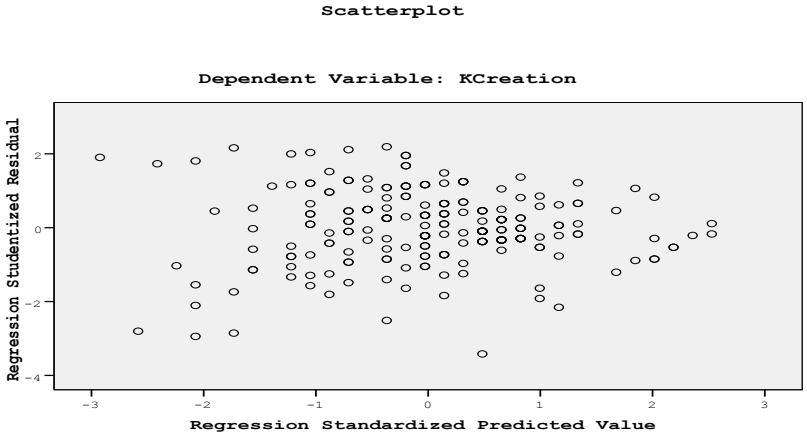
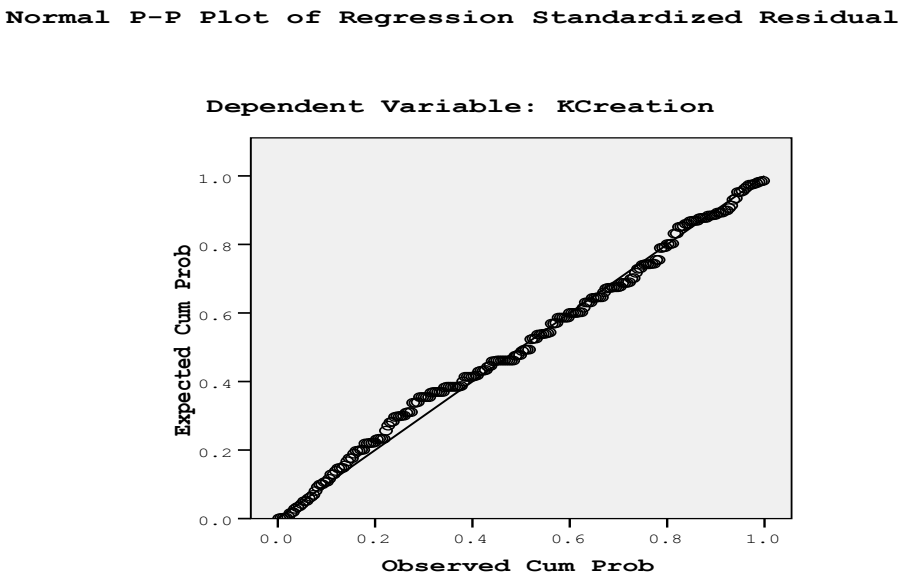


Figure 6.2: Plot of Regression Standardized Residual of Organisational Culture vs. Knowledge Creation Process (KCP)



Figures 6.3 and 6.4 also show the scatter plot of organisational creativity (OC) vs. knowledge creation process (KCP) and the plot of regression standardized residuals, respectively. The residuals were found to be normally, randomly and consistently dispersed through the scatter-plot. The pattern of the residuals is related to the null plot, which indicates that the assumption of linearity and homoscedasticity for the organisational creativity (OC) with the knowledge creation process (KCP) is met (Hair et al., 2010).

Figure 6.3: Scatter Plot of Organisational Creativity (OC) vs. Knowledge Creation Process (KCP)

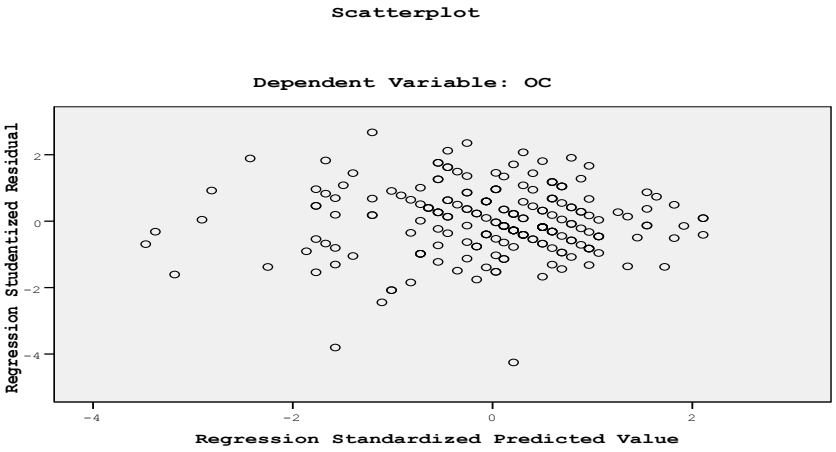
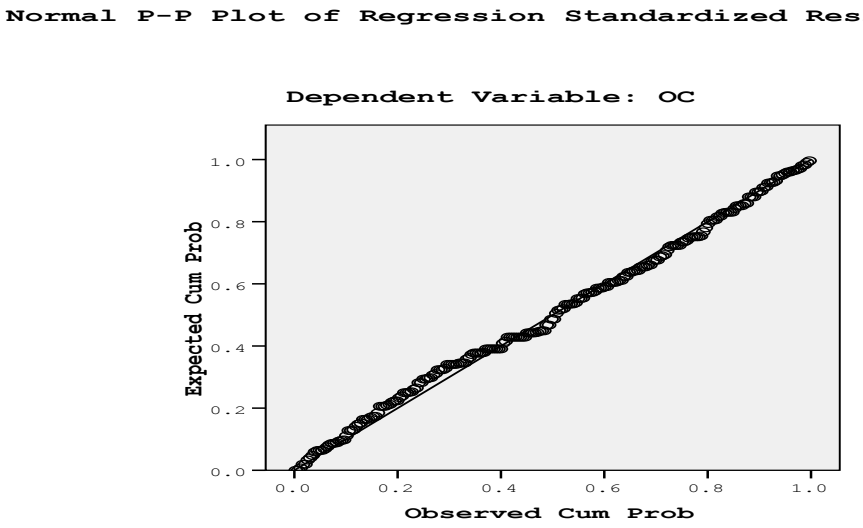


Figure 6.4: Plot of Regression Standardized Residual of Organisational Creativity (OC) vs. Knowledge Creation Process (KC)



6.5 Multiple Regression Analyses

Following the confirmation of the suitability of the survey data, multiple regression methods were carried out to predict the relative influence of independent variables on the outcome variable (dependent variable). Multiple regression techniques are extensively used in the social sciences and business to investigate all styles of dependent relationships (Tabachnick & Fidell, 2007). It is a suitable technique of analysis when the research problem includes one metric dependent variable such as knowledge creation process (KCP) assumed to be related to one or more independent variables, such as organisational culture factors (Hair et al., 2006). Since multiple regression is used for prediction, it was utilised in this study to predict the changes in the dependent variable in response to variations in the combination of independent variables and measure their contribution to the dependent variable (Punch, 2003; Berenson et al., 2004). Therefore, regression analyses were executed to predict the comparative test of the research hypotheses. Multiple regression techniques offer a means of objectively measuring the significance and direction of each independent variable's relationship to its outcome variable (Tabachnick & Fidell, 2007). Hence, to test the hypotheses concerning the relationship among and between dependent and independent variables, multiple regression analyses techniques were employed.

6.5.1 Testing the Effect of Organisational Culture (Trust, Collaboration and Learning) on Knowledge Creation Processes - Hypotheses (H1 – H3)

After determining the relationships between variables and factors by the correlation analysis, it is essential to find the strength and the directions of the relationship between variables. The method of ordinary least squares (OLS) was employed to estimate the coefficients of the regression equations. This method was chosen since it yields desirable results, such as an unbiased estimator (Plane & Oppermann, 1977). Table 6.4 provides

the results of multiple regressions for the organisational culture (trust, collaboration and learning) hypotheses. A t-test is used to find out if there is a significant relationship between the dependent variables and each of the independent variables. A P-value ***ρ<0.01, **ρ<0.05, *ρ<0.10 shows that the independent variable is associated with changes in the dependent variable. The F-value is a statistical test used to determine whether the estimated model as a whole has significant analytical capability (all the dependent variables are associated with changes in the dependent variable). For detecting how well the estimated regression model fits the sample data, R^2 (the coefficient of determination) is used. However, adjusted $-R^2$ for the degree of freedom should be used in multiple regression analysis (Gujarati & Porter, 2010). In Table 6.4, the values of F-test for all the five estimated multiple equations were found to be highly significant at ρ<0.01. Thus, all the dependent variables are associated with changes in the dependent variable. Trust, collaboration and learning (independent variables) positively affect the dependent variable (knowledge creation processes). Trust and learning are significantly affect KCP and the four sub-dimensions of KCP.

Table 6.4: Results of the Multiple Regression Equations for Culture (Trust, Learning and Collaboration) vs. Knowledge Creation Process (KCP). (n=214)

Independent Variables	**KCP** R^2 = 0.731 Adjusted R^2 = 0.728 F= 190.7***	**Socialisation** R^2 = 0.296 AdjustedR^2= 0.286 F= 29.9***	**Externalisation** R^2 = 0.500 Adjusted R^2= 0.493 F= 69.9***	**Combination** R^2 = 0.545 Adjusted R^2= 0.539 F= 83.9***	**Internalisation** R^2 = 0.412 Adjusted R^2= 0.404 F= 49.14***
Trust (H1)	β = 0.241 t = 5.66***	β= 0.164 t = 1.98*	β= 0.255 t = 3.26***	β= 0.221 t = 3.32***	β= 0.387 t = 4.64***
Learning (H2)	β = 0.335 t = 11.04***	β= 0.191 t = 3.23***	β= 0.449 t = 8.04***	β= 0.415 t = 8.75***	β= 0.224 t = 3.76***
Collaboration (H3)	β= 0.209 t = 4.75***	β= 0.282 t = 3.30***	β= 0.111 t = 1.38	β= 0.128 t = 1.866	β= 0.209 t = 2.42*

***ρ<0.01, **ρ<0.05, *ρ<0.10.

The findings of a CFA observed that the measurement model of organisational culture achieved good fit indices. The outcomes of the regression analysis show that each of the independent variables (trust, learning, and collaboration) was positively correlated on the dependent variable of all four modes of knowledge creation processes. However, the effect of each dimension of organisational culture is not the same. Trust and learning both have a positive and significant impacts on the four modes of knowledge creation (socialisation, externalisation, combination and internalisation). Collaboration has a positive and significant effect on KCP as a whole, socialisation and internalisation.

Trust on KCP: β= 0.241***, trust on socialisation: β= 0.164*, trust on externalisation: β=0.255***, trust on combination: β= 0.221***, and trust on internalisation: β= 0.387***. The maximum effect of trust is on internalisation. Regarding the relation between learning and the four modes of knowledge creation processes are: learning on KCP: β= 0.335***, learning on socialisation: β = 0.191***, learning on externalisation: β= 0.449***, and learning on combination: β= 0.415***, and learning on internalisation: β= 0.224***. The maximum effect of learning is on externalisation. The relation between collaboration and the four modes of knowledge creation processes are: collaboration on KCP: β= 0.209***, collaboration on socialisation: β= 0.282***, collaboration on externalisation: β= 0.111, and collaboration on combination: β= 0.128, and collaboration on internalisation: β= 0.209*. The maximum effect of collaboration is on socialisation.

6.5.1.1 Mediating Role of KCP between Organisational Culture and Organisational Creativity H1-3

The effect of the knowledge creation process as an intermediary outcome (mediator) between organisational culture and organisational creativity will be tested using the same procedure as in the last section. This study argues that KCP mediates between organisational culture and creativity. On the other hand, a few studies view both KCP and enablers including organisational culture as precursors (antecedents) of organisational performance (OP) (Becerra-Fernandez & Sabherwal, 2001; Gold et al., 2001) and both of them are independent factors of OP. In order to analyse the mediating impact of KCP, the Baron and Kenny technique is implemented.

Table 6.5 demonstrates the result of this investigation. This outcomes in the intervention impact analysed in this study because the accompanying three circumstances hold. These conditions are: 1) the three dimensions of organisational culture (collaboration, trust and learning) influence KCP; 2) trust, collaboration and learning affect organisational creativity and 3) KCP influence organisational creativity (β= 0.750***) while the impacts of collaboration, trust and learning are diminished. For example, in the case of collaboration, its beta value is diminished from 0.447 to 0.290, trust from 0.275 to 0.095 and learning from 0.238 to -0.014. In sum, we may point out that KCP mediates between the organisational culture (collaboration, trust and learning) and organisational creativity (OC). Thus, these results along with the findings presented in Table 6.4 support H1 and H2. Regarding collaboration, it significantly affects KCP, socialisation and internalisation, while the effects on externalisation and combination were insignificant. Thus, H3 is partially supported. In addition, Trust, collaboration and learning explain 73% of the total variance (adjusted$-R^2$) in the knowledge creation process.

Table 6.5: Mediation Analysis Results for knowledge Creation Process (KCP). (n=214)

Independent Variables	**KCP** $R^2 = 0.731$ Adjusted$R^2 = 0.728$ F= 190.7***	**Organisational Creativity** $R^2 = 0.472$ Adjusted$R^2 = 0.464$ F= 62.5***	**Organisational Creativity** $R^2 = 0.547$ Adjusted$R^2 = 0.539$ F= 63.2***
Collaboration (CC)	β= 0.209***	β= 0.447***	β= 0.290***
Trust (CT)	β= 0.241***	β= 0.275***	β= 0.095
Learning (CL)	β= 0.335***	β= 0.238**	β= -0.014
KCP			β= 0.750***

*****ρ<0.01, **ρ<0.05, *ρ<0.10.**

6.5.2 Results of the Regression Equations for Organisational Creativity (OC) vs. KCP and the Four Sub-Dimensions of KC. Hypotheses: H4 - H4a - H4b - H4c - H4d.

Table 6.6 shows the results of the simple regression for knowledge creation process (KCP) and organisational creativity (OC). The results of Table 6.6 along with the findings of the mediating role of organisational creativity between KCP and OP, which will be discussed in the next section (Table 6.8), indicate that KCP affects OP positively and significantly. Thus, **H4** has not been violated and therefore it is supported and validated.

Table 6.6: Summary of the Results of the Simple Regression Equation for Organisational Creativity vs. Knowledge Creation Process (KCP). (n=214)

Independent Variables	**Organisational Creativity** $R^2 = 0.513$ Adjusted$R^2 = 0.510$ F= 222.910***
KCP	β= 1.012 t = 14.930***

***ρ<0.01, **ρ<0.05, *ρ<0.10.

Table 6.7 summarises the multiple regression results for the knowledge creation processes (KCS, KCE, KCC, and KCI) and organisational creativity (OC). F-value indicates that the model as a whole has significant analytical power at p>0.01. In addition, all the estimated coefficients have a positive effect on creativity. Table 6.7 also indicates that socialisation, externalisation, and internalisation affect organisational creativity positively and significantly. The only one mode of knowledge creation which does not have a significant level is combination; however, all creation processes contribute positively and explain 51.3% of the total variance in organisational creativity.

The effect of each process of knowledge creation is not the same. Socialisation on OC: β= 0.231**, externalisation on OC: β= 0.266***, combination on OC: β=0.045, internalisation on OC: β= 0.409***. These results along with the findings of the mediating role of organisational creativity between KCP and OP (Table 6.8) indicate that **H4a, H4b and H4d** have not been violated and therefore they are supported and validated. However, the sub-hypothesis (**H4c**) has been violated and therefore it is rejected.

Table 6.7: Summary of the Results of Multiple Regression Equations for Organisational Creativity vs. Knowledge Creation Processes (KCS, KCE, KCC, KCI). (n=214)

Independent Variables	**Organisational Creativity** $R^2 = 0.530$ Adjusted$R^2 = 0.521$ F= 58.965***
Socialisation	β= 0.231 t = 3.344**
Externalisation	β= 0.266 t = 3.489***
Combination	β= 0.045 t = 0.575
Internalisation	β= 0.409 t = 6.180***

***ρ<0.01, **ρ<0.05, *ρ<0.10.

6.5.2.1 Mediating Role of Organisational Creativity between KCP and Organisational Performance.

In this section, the effect of organisational creativity as an intermediary outcome (mediator) between knowledge creation process (KCP) and organisational performance (OP) will be tested. Baron and Kenny's (1986) technique as implemented by De Gilder, (2003); Lee and Choi, (2003) will be utilised to test the mediating effect of organisational creativity.

All knowledge creation processes (KCS, KCE, KCC, and KCI) affect organisational creativity (OC) positively. In order to confirm whether a mediator is an important predictor of knowledge management (KM) or not, additional model exclusive of organisational creativity is built to search the direct association between knowledge creation processes (KCP) and organisational performance (OP). Analysing this direct

relationship indicates no significant relationships with socialisation. This is in line with the earlier study (Lee & Choi, 2003). Organisational creativity (OC) affects organisational performance ($p<0.01$) whereas the effects of the previous three creation processes are reduced. For example, for socialisation and externalisation, as indicated in Table 6.8 below, their beta (β) values are decreased from 0.059 to 0.009 and from 0.228 to 0.095, respectively. This suggests that the mediator (intermediate outcome) can help to create a chain of credibility between knowledge creation process and performance.

Table 6.8: Mediation Analysis Results for Organisational Creativity (OC). (n=214)

Independent Variables	**Organisational Creativity** $R^2 = 0.671$ Adjusted$R^2 = 0.665$ F= 106.545***	**Organisational Performance** $R^2 = 0.433$ Adjusted$R^2 = 0.422$ F= 39.860***	**Organisational Performance** $R^2 = 0.502$ Adjusted$R^2 = 0.490$ F= 41.947***
Socialisation	β= 0.231**	β= 0.059	β= 0.009*
Externalisation	β= 0.266***	β= 0.228***	β= 0.095*
Combination	β= 0.045	β= 0.117**	β= 0.100
Internalisation	β= 0.409***	β= 0.104*	β= 0.013
Organisational Creativity			β= 0.329***

*****ρ<0.01, **ρ<0.05, *ρ<0.10.**

6.5.3 Results of the Regression Equation for Organisational Performance (OP) vs. Organisational Creativity (OC). H5.

Table 6.9 summarises the regression results for organisational performance (OP) vs. organisational creativity (OC). The estimated coefficient of organisational creativity (β= 0.291***) has a positive and significant effect on the overall performance of the banking sector in Saudi Arabia. It contributes positively at ρ<0.01 and explains 24.9% of the total variance in organisational performance. Hence, **H5** has not been violated and therefore it is supported and validated.

Table 6.9: Summary of the Results of the Regression Equation for Organisational Performance (OP) vs. Organisational Creativity (OC). (n=214)

Independent Variables	**Organisational Performance** R^2 = 0.249 AdjustedR^2= 0.245 F= 70.114***
Organisational Creativity	β= 0.291 t = 8.373***

***ρ<0.01, **ρ<0.05, *ρ<0.10.

6.6 The Main Findings from the Multiple Regression Analysis

Table 6.10 provides a summary of the research hypotheses under the heading of each research question. The empirical results of the regression analysis show that the hypotheses (H1, H2, H3, H4, H4a, H4b, H4d and H5) are supported, whereas one sub-hypothesis (H4c) is rejected.

Table 6.10: Summary of the Research Hypotheses of Regression Analysis

RQ1: How does organisational culture influence the organisational creativity of Saudi banks?		
H1	The presence of high trust is positively related to the level of creativity through KCP in the Saudi banks.	Supported
H2	The presence of activities involving learning is positively related to the level of creativity through KCP in the Saudi banks.	Supported
H3	The presence of organisational members with high collaboration is positively related to the level of creativity through KCP in the Saudi banks.	Partially Supported
RQ2: How are knowledge creation processes linked to organisational performance in the Saudi banks?		
H4	KCP positively contributes to the level of performance through creativity in the Saudi banks.	Supported
H4a	Socialisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Supported
H4b	Externalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Supported
H4c	Combination tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Rejected
H4d	Internalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Supported
H5	There is a positive relationship between organisational creativity and overall performance of the banking sector in Saudi Arabia.	Supported

6.7 Chapter Summary

In this chapter, the collected data was analysed using correlation, regression methods and the results of each method were presented. The results provide evidence of the significant impacts of the organisational culture and knowledge creation processes on organisational creativity and organisational performance, in the banks represented by the survey data. The empirical results will be discussed in the next chapter.

CHAPTER 7: DISCUSSION

7.1 Introduction

The literature review presented in Chapters 2 and 3 discussed several research studies, containing: (i) research on the relationship between organisational culture and the knowledge creation process; (ii) the relationship between the knowledge creation process and organisational creativity; and (iii) the relationship between organisational creativity and organisational performance. Most of the previous studies proposed that the incorporation of the four modes of knowledge creation processes (KCP) improved performance in business. However, most of these analyses did not show the utilisation of each process of the SECI model in specific business settings and specifically not in the banking sector, which has an enormous effect on the international wealth. The scarce research available signified that the role of SECI processes in worldwide banks was different from one country to another (Kubo et al., 2001; Mizintseva & Gerbina, 2009). Additionally, the suitability of the SECI model in various cultural settings is debatable (Glisby & Holden, 2003; Haag et al., 2010; Andreeva & Ikhilchik, 2011; Easa & Fincham, 2012). In addition, the relationship between KC processes and organisational culture has received relatively little consideration regardless of its high potential (Vicari & Troilo, 2000). Hence, an integrative research model was used in this study, which interrelates knowledge management factors (organisational culture, KC processes, creativity and organisational performance). This type of model is imperative and offers a clearer view of how each of its factors influences performance, from a process-oriented perspective (Lee & Choi, 2003).

In the previous chapter, the results of the multiple regression and CFA analysis of the survey data were presented. This chapter offers a discussion of the results linked to the research hypotheses in order to answer the research questions presented in Chapter 1. The

purpose of this discussion chapter is to summarise the major findings on the application of the SECI model in the banking sector of Saudi Arabia, a country that is strongly shaped by Islamic culture, where research has not been done so far. The chapter begins with the research questions as a reminder of the study's aim. Section 7.2 presents the major findings and results based on the evaluation of the impact of organisational culture factors and KC processes on organisational creativity and performance in Saudi banks. Section 7.3 provides a discussion of the four modes of knowledge creation processes (SECI) in knowledge-intensive Saudi banks. In addition, the applicability of the SECI model in the Saudi Arabian cultural setting is considered. Suggestions for analysts, policy makers and specialists, in addition to the research limitations and proposals for future research, will be presented in the following chapter.

7.2 Major Research Findings and Discussion

The research questions and objectives were presented in Chapter 1. As illustrated, the aim of this study was to analyse the impact of organisational culture and knowledge creation processes on organisational creativity and performance in knowledge-intensive banks. The emphasis was on knowledge creation processes namely, socialisation, externalisation, combination and internalisation (SECI) in the context of domestic banks operating in Saudi Arabia. In order to achieve the research aim, two research questions were formulated as follows:

i. **RQ1:** How does organisational culture influence the organisational creativity of Saudi banks?
ii. **RQ2:** How are knowledge creation processes linked to organisational performance in the Saudi banks?

This section presents the findings and discussion linked to the research hypotheses in order to answer the research questions presented. The findings of the analysis and survey results are presented in more detail in conformity with the underlying research questions. The findings of the analysis, whether a confirmation of the hypothesis or a rejection, are discussed under the related constructs and compared with previous findings in the literature. Nonaka and Takeuchi's (1995) SECI model of the knowledge creation process, which includes four constructs, socialisation, externalisation, combination, and internalisation, was taken as a strong point for this study. These four modes of the SECI model were included in an integrated research model as the constructs representing the knowledge creation process (KCP). Additionally, the model included collaboration, trust, and learning. Therefore, this comprehensive study considered crucial for offering a clear understanding of the features of each conversion mode of the SECI model in the banking industry. Overall, the findings of this study supported many of the proposed relationships. Particularly, it was found that the selected organisational culture factors and knowledge creation processes were found to be related to overall performance in Saudi banks. The findings also demonstrated that KCP and organisational creativity act as intermediary outcomes (mediators) in the effect of organisational culture on organisational performance in Saudi banks. The main findings linked with the research hypotheses are as follows.

7.2.1 The Findings of the Confirmatory Factor Analysis (CFA)

In order to manage common method variance (CMV) during the research design, each item was given a code and all the items mixed and listed randomly in the distributed questionnaire. In addition, this study used CFA for eliminating factors in an attempt to take out as much common variance as possible in the first factor.

Cronbach's Alpha values of organisational culture (collaboration, trust and learning), KCP (socialisation, externalisation, combination and internalisation), organisational creativity, and organisational performance ranged between 0.644 and 0.823. According to Hair et al. (2006) and Pallant (2016), the value of 0.60 is at the lower boundary of acceptability. However, Cronbach's Alpha score is a coefficient of consistency and not a statistical test (Hair et al., 2006). Therefore, specialists recommend that analyses of inter-total correlations should be considered (Pallant, 2016). Accordingly, this study analysed the inter-total correlations, and the results indicate that generally the items within each construct seemed to measure the same constructs as intended in the conceptual model, as their corrected inter-total items were larger than 0.30 (Pallant, 2016).

All the nine constructs in this study were found to have an indication of convergent and discriminant validity. These results show that each construct is actually different from other constructs in terms of how it correlates (discriminant validity). In addition, all constructs share a large ratio of variance in common (convergent validity). Convergent validity (CV) was evaluated using the suggested criteria of Hair et al. (2006) through CFA. (1) The average variance extracted (AVE) should be more than 0.5 to propose sufficient CV. (2) The composite reliability should be more than 0.7. (3) The factor loadings should be more than 0.5.

CFA was applied to analyse the goodness of fit using Amos v.24. The results verified that all of the scales utilised in the study created adequate measurement models, thereby providing confirmations for the construct validity of the measures. The Chi-Square value is an old-style measure for assessing overall model fit. Since the acceptable values range from as low as 2.0 (Tabachnick & Fidell, 2007) to as high as 5.0, the Chi-Square to degrees of freedom ratio ($\chi 2/df$) was used instead. The value for an adequate model should be below three (Kline, 1998). The Chi-Square to degrees of freedom ratio was

(186.846/116 = 1.611), which is considerably less than the proposed maximum value (Chapter 5: Table 5.8). Furthermore, the GFI, CFI, TLI, and IFI values were more than 0.9 (Bollen & Long, 1993; Hair et al., 2010) and the RMSEA score was at the accepted score 0.054 (Hair et al., 2010). These results indicated that the measurement model fitted the data well.

7.2.2 Aspects of Organisational Culture (Trust, Learning, and Collaboration) in the Saudi Banking Industry

The results of the regression method show that trust, learning and collaboration were positively related to creativity through KCP in the Saudi banks, as hypothesised. Trust and learning both have a positive and significant impact on the four modes of knowledge creation (socialisation, externalisation, combination and internalisation). Collaboration has a positive and significant effect on KCP as a whole, socialisation and internalisation. However, collaboration has a positive and insignificant effect on externalisation and combination. Therefore, H1 and H2 are supported and H3 is partially supported.

Table 7.1: Results of Hypothesis Tests related to Organisational Culture Variables

#	Hypothesis statement	Result
H1	The presence of high trust is positively related to the level of creativity through KCP in the Saudi banks.	Supported
H2	The presence of activities involving learning is positively related to the level of creativity through KCP in the Saudi banks.	Supported
H3	The presence of organisational members with high collaboration is positively related to the level of creativity through KCP in the Saudi banks.	Partially Supported

One of the primary objectives of this study was to examine the impact of organisational culture on the knowledge creation process in the Saudi banks. The intention of this study not to cover all the organisational culture variables instead, the selection of the constructs was built on a sound theoretical background and oriented to the banking sector in Saudi Arabia. Many previous studies have found that trust, learning and collaboration had a significant positive contribution to the KCP in various business settings (Madhavan & Grover, 1998; Johannessen et al., 1999; Jarvenpaa, 2000; Lee & Choi, 2003). Consequently, it was reasonably deduced that trust, learning, and collaboration had a significant positive influence on the knowledge creation process in the Saudi banks.

The overall mean score for the items on trust is 3.82 and its corresponding standard deviation (SD) is 0.86 (Chapter 5: Table 5.3). This aggregate mean score tends to 4 (agree) on the 5-point Likert scale adopted for the study and thus implies that respondents mostly agreed that activities involving trust are experienced in Saudi banks. In addition, these replies are clustered around the mean, as shown by the low overall SD. The small inconsistency of replies exposes that the mean is a reliable estimator for the true mean. The narrow deviation from the aggregate mean proves that trust is important for knowledge creation (KC). The percentage distribution (Chapter 5: Table 5.2) showed that the Saudi banks execute particular actions to build trust. 85.6% of responses specified that the bank members are generally trustworthy; bank members have reciprocal trust that others' decisions are oriented toward bank interests rather than individual interests (73.9%), and they have relationships based on reciprocal trust (70.5%).

The overall mean score for the items on learning is 3.60 and its corresponding standard deviation (SD) is 1.09 (Chapter 5: Table 5.3). This aggregate mean score tends to 4 (agree) on the 5-point Likert scale adopted for the study and thus implies that respondents mostly agreed that activities involving learning are experienced in Saudi banks. In addition, these

replies are clustered around the mean, as shown by the low overall SD. The small inconsistency of replies exposes that the mean is a reliable estimator for the true mean. The narrow deviation from the aggregate mean proves that learning is important for knowledge creation (KC). The percentage distribution (Chapter 5: Table 5.2) showed that the Saudi banks execute particular actions to apply learning. 80.4% of responses agreed that the bank provides various formal training programmes for the performance of duties.

The overall mean score for the items on collaboration is 3.61 and its corresponding standard deviation (SD) is 0.95 (Chapter 5: Table 5.3). This aggregate mean score tends to 4 (agree) on the 5-point Likert scale adopted for the study and thus implies that respondents mostly agreed that activities involving collaboration are experienced in Saudi banks. In addition, these replies are gathered around the mean, as shown by the low overall SD. The small inconsistency of replies exposes that the mean is a reliable estimator for the true mean. The narrow deviation from the aggregate mean proves that collaboration is important for knowledge creation (KC). The percentage distribution (Chapter 5: Table 5.2) showed that the Saudi banks execute particular actions to apply collaboration. 72.4% of responses specified that the bank members are generally helpful, and 68.7% of responses specified that the bank members are generally supportive. In addition, 63.1% of the bank members indicated their willingness to collaborate across the bank.

The findings of the regression analysis (Chapter 6: Tables 6.4 - 6.5) show that each of the independent variables (trust, learning, and collaboration) was positively correlated on the dependent variable of all four modes of knowledge creation processes. (trust on KCP: β= 241***, trust on KCS: β= 0.164*, trust on KCE: β= 0.255***, trust on KCC: β= 0.221***, trust on KCI: β= 0.387***). Regarding the relationship between learning and the four modes of knowledge creation processes the results were learning on KCP: β= 0.335***;

learning on KCS: β = 0.191***; learning on KCE: β= 0.449***; learning on KCC: β= 0.415***; and learning on KCI: β= 0.224***. The relationship between collaboration and the four modes of knowledge creation processes yielded the following results: collaboration on KCP: β= 0.209***; collaboration on KCS: β= 0.282***; collaboration on KCE: β= 0.111; collaboration on KCC: β= 0.128; and collaboration on KCI: β= 0.209*. Moreover, the results show that organisational culture (trust, learning, and collaboration) explains about 73 per cent of the total variance in the knowledge creation process.

The present study verifies that organisational culture (trust, collaboration and learning) is a major influencing factor of KCP. This result is consistent with previous studies (Nonaka & Takeuchi, 1995; Lee & Choi, 2003; Nejatian et al., 2013). The findings emphasised that motivating forces and rewards are the most critical social variable empowering the KCP. These components significantly affect the formation of both tacit and explicit knowledge. These motivational drivers urge representatives to share what they know and to generate the latest knowledge (Teerajetgul & Charoenngam, 2006; Gururajan & Hafeez-Baig, 2012). In addition, trust is a main empowering influence on KCP and specifically an important indicator of externalisation and socialisation. This outcome in accordance with Lee and Choi (2003) and Jeng and Dunk (2013). A trust-based culture encourages collective environment, prompts acknowledgement amongst workers and increases their ability to share tacit knowledge and generate new ideas (Golipour et al., 2011). These results affirm additionally the investigation of Weir and Hutchings (2005) who underscored that in Arab nations, trust is a critical element for KCP achievement. They expressed that in Arab culture, a trustful relationship is a precondition for information sharing.

This study provides current empirical evidence for the relationship between learning and the knowledge creation processes. The findings of this study indicate that the independent

predictor variable of the learning construct was positively and significantly correlated with the dependent variable of the knowledge creation process. This result supports those of prior empirical studies, including those conducted by Lee and Choi (2003), Soon and Zainol (2011), Al-Hakim and Hassan (2012), Jeng and Dunk (2013) and Berraies et al. (2014). As Nonaka and Takeuchi (1995) confirmed, learning is, fundamental to the knowledge creation process. Moreover, it could be contended that there are favourable implications. Consequently, learning has permanently made a significant role in Saudi society while overall policy has increased the significance of education in the past 10 years. The inducement offered to the establishment of several public and private higher education institutions (domestic and external) has been a fundamental factor in human resource growth in Saudi Arabia and has had a strong and intensive impact on the banking industry. The other factor related to learning with a positive influence on the knowledge creation process, in Saudi Arabia, is the growth of internet technology. This has enabled the fast development of this organisational characteristic as social networking sites, groups, and forums have established a community of practice, through open sourcing. It is hard to exaggerate the significance of their role in unofficial learning and the knowledge creation process in the Saudi banking sector.

The present study found that collaboration is positively related to the knowledge creation processes. This result is consistent with previous studies (Lee & Choi, 2003; Shih & Chou, 2012). A collaborative culture is essential for efficient KM (Hansen et al., 1999). In addition, collaborative connections such as social interaction and open discussion can aid in generating knowledge (Hedlund, 1994). For a positive KC, sharing knowledge between individuals is a requirement. This type of sharing can be promoted by collaborative connections to decrease fear and trust in new participants. The cultural factors (Trust, Collaboration, and Learning) are found to be essential for knowledge creation. Collaboration is positively linked with KC processes. In particular, trust and learning are

major predictors of all KC processes. Furthermore, this study verifies that the KCP is positively linked to creativity, which is positively connected with organisational performance as shown in testing the mediation role of KC processes between organisational culture and creativity. Thus, organisational culture variables; such as trust, collaboration and learning are positively related to the level of creativity through KCP in Saudi banks. The results of this study indicate that Saudi banks will be capable of attaining strategic advantages of KM throughout effective KC processes.

The significant and positive impact of trust, learning and collaboration on knowledge creation processes in Saudi banks suggest that the bank's knowledge creation process grows when trust, learning and collaboration improve. Additionally, the bank should interpret knowledge policy in terms of measurable objectives and requirement, and set out a series of procedures for evaluating them within a particular timeframe. In general, the findings were supported by other studies, such as Lee and Choi (2003); Islam (2011); Soon and Zainol (2011); Al-Hakim and Hassan (2012); Shih and Chou (2012); Jeng and Dunk (2013) and Berraies et al. (2014). However, only Lee and Choi (2003) and Berraies et al. (2014) evaluated the impact of trust, learning and collaboration on each mode of the KCP, but in different cultures and business settings than the present study.

7.2.3 Aspects of the Four Modes of SECI Model in the Saudi Banking Sector

The literature has firmly established the role of the knowledge creation process in organisational creativity (Woodman et al., 1993; Nonaka & Takeuchi, 1995; Vicari & Troilo, 2000; Soon & Zainol 2011; Shahzad et al., 2016). Consequently, it can be reasonably deduced that the knowledge creation process would enhance organisational creativity process in the Saudi banks. The empirical results of this study show that knowledge creation processes (socialisation, externalisation, combination and internalisation) were positively related to the organisational creativity in the Saudi banks

as hypothesised. The sub-hypothesis H4c is the only one that was not supported, while H4, H4a, H4b, and H4d were supported (Table 7.2). The present study ensured that the general model passed that the goodness-of-fit test before estimating the coefficients, Critical Ratio (CR) and Standard Error (SE) between latent factors. The goodness-of-fit of the general model was demonstrated to be acceptable on the grounds that $\chi 2/d.f. < 5$ and GFI, AGFI and NFI are around 0.90, with the RMR smaller than 0.05 (Chapter 5: Table 5.9).

Table 7.2: Results of Hypothesis Tests related to Knowledge Creation Process

#	Hypothesis statement	Result
H4	KCP positively contributes to the level of performance through creativity in the Saudi banks.	Supported
H4a	Socialisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Supported
H4b	Externalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Supported
H4c	Combination tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Rejected
H4d	Internalisation tactics positively contribute to the level of performance through creativity in the Saudi banking industry.	Supported

The findings of the regression analysis (Chapter 6: Tables 6.6 - 6.7) show that each of the independent variables (socialisation, externalisation, and internalisation) was positively and significantly correlated with the dependent variable of organisational creativity (OC). KCP on OC: $\beta = 1.012^{***}$; KCS on OC: $\beta = 0.231^{**}$; KCE on OC: $\beta = 0.266^{***}$; KCI on OC: $\beta = 0.409^{***}$. The only combination found to be positively correlated, but insignificant (KCC on OC: $\beta = 0.045$). Moreover, the results of multiple regression

analyses show all modes of the knowledge creation process together explain 51.3% of the total variance in organisational creativity (Chapter 6: Table 6.6).

The present study indicates that the knowledge creation process is statistically significant and positively linked to organisational creativity. As Nonaka and Takeushi (1995) argue, the knowledge creation process and certainly the overall organisational knowledge creation process is significant because this links to "the capability of a company as a whole to create new knowledge, disseminate it throughout the organisation, and embody it in products, services, and systems" (Nonaka & Takeuchi, 1995:3). This permits the "knowledge creating" organisation to accomplish persistent innovation (Nonaka, 1991:96).

The results above show that the internalisation, externalisation, and socialisation processes have a more significant role in Saudi banks than the combination process. Saudi banks were enthusiastic about applying these procedures because of their importance in banking applications and they are widespread the nation over. These results for the most part support those of Glisby and Holden (2003), Weir and Hutchings (2005), Haag et al. (2010), and Andreeva and Ikhilchik (2011). These studies propose that the SECI model is not all-inclusive and that not every one of its modes has a similar significance in various social and business settings. In spite of the fact that Hofstede et al. (2010) showed that individuals in the Arab world follow a collectivist as opposed to an individualist social framework, however, the socialisation process of knowledge creation was restricted in Saudi banks. According to Hofstede et al. (2010), the causal relationship between members was limited in view of the essential absence of trust in the socialisation process, in substantial part because of the high power distance. This reveals that the way of doing business may influence the utilisation of each SECI process.

Present knowledge has a vital function in organisational creativity. Consequently, access to information, ideas and expertise support persons and groups to build on good ideas and combine them into innovative processes and products. For instance, the explicit (digital) material in the organisation intranet and 'communities' can considerably stimulate an organisation's creativity and innovation. Nevertheless, in order to act as a source of innovative ideas for a firm, knowledge has to go through an examination and appraisal process. Accordingly, various studies have confirmed the axial function of knowledge management, especially creating an internal working environment that supports creativity and encourages innovation (Amabile et al., 1996; Soderquist et al., 1997).

Compared with previous studies in the field, the results obtained from this study further revealed that the knowledge creation process (socialisation, externalisation and internalisation) is positively related to organisational creativity, while the combination is rejected. These findings support previous studies in the field of knowledge creation and organisational creativity (e.g., Soon & Zainol, 2011; Berraies et al., 2014; Shahzad et al., 2016). These researchers mostly suggested that the knowledge creation process contributes to the organisational creativity and managerial intelligence, which improves the permeation of knowledge through an organisation. Therefore, the knowledge creation process (socialisation, externalisation and internalisation) plays a significant role in providing vision and capacity for knowledge sharing, and stimulating organisational creativity in the Saudi banks. Banks that implement the entire knowledge creation process of the SECI model (socialisation, externalisation, combination, and internalisation) would improve organisational creativity and managerial intelligence. These results are consistent with, for example, Woodman et al. (1993); Vicari and Troilo (2000) and Lee and Choi (2003). These studies provide strong evidence of a direct relationship between the knowledge creation process and organisational creativity.

In addition, the findings of this study confirm prior studies by Lee and Choi (2003); Soon and Zsinol (2011) and Shahzad et al. (2016). Only the effect of the combination process on creativity in this study is not consistent with most of the prior studies. However, Weir and Hutchings (2005) have demonstrated the limited applicability of combination in non-Japanese context. This finding, in particular, will be investigated more in the following sections.

7.2.3.1 Socialisation Process (Tacit-new Tacit)

The essential manner of doing business in the Arab world is socialisation and there is a need to build up a relationship (Weir, 1998). This process is exceptionally tedious; however, once a relationship has been built up in the Arab world, verbal, contracts are total and an individual's pledge is her/his bond and inability to meet verbally concurred commitments will unquestionably lead to an end of a business relationship (Weir, 1998).

The findings of this study showed socialisation as a key predecessor for the exchange of tacit knowledge (TK) in the Saudi banks. Bank representatives were included in socialisation through close and personal cooperation, at work and off-the-job. 80.8% of the participants expressed that they attempted to discover others' conclusions, ideas, contemplations or thoughts through rotation across bank’s branches while, 66.8% of employees reported that they urged others to express their ideas, contemplations or thoughts. The inclination to share knowledge by social collaboration during work tasks in the Saudi banks likewise demonstrated management support for the exchange of TK through formal and informed work environments. This is similar to what has been reported in Japanese banks, which utilised individual interpersonal relationships, in-house training and job rotation to share information (Kubo et al., 2001). The exchange of TK throughout social collaboration in the Saudi banks likewise affirmed the qualities of a collectivist society in the light of solid, firm gatherings and sound good conditions

(Hofstede et al., 2010). These results support Rodrigues et al.'s (2006) claim that socialisation can be accomplished through discussion between individuals when they share thoughts and experiences. It implies that the work environment community is a capable empowering agent of information exchange as it supports collaboration and cooperation, which could be critical in the KCP. As individuals in the Arab world are part of a collective, as opposed to individualist culture (Hofstede et al., 2010), it is characteristic for them to associate in the working environment.

As well as among employees, face-to-face exchanges with clients are vital to making and exchange information (Nonaka & Takeuchi, 1995). As working in bank branches permits investors to hold day-by-day personal discourses with clients, Saudi banks likewise have contract brokers who regularly contact clients. Leading business dialogue in a social setting with clients outside the work environment was restricted, yet conversely, there were frequent formal exchanges with the regulators delegates from the Central Bank of Saudi Arabia and the Central Auditing Agency and with the organisations that requested banks' give advice, for example, possibilities to think about, territory to consider, and so forth. This suggests banks in Saudi Arabia favour formal over informal dialogues. Similar to Nonaka's delineation of Japan, the Arab world is also a culture that exhibits sharing of encounters to make TK (socialisation) dependent on the presence of solid systems. Hutchings and Michailova (2004) have suggested that, as contrary to popular belief, the Arab world is not totally impervious to information exchange but rather will really share information uninhibitedly, but only within their trusted systems in which an insider relationship exists between transmitter and recipient. However, while in Japan these systems work across organisations, in the Arab world the systems largely just work on a departmental basis and thus knowledge is just exchanged inside offices.

This study additionally upheld the belief that individuals are pushed through solid relationships in which the community fortifies the way of life of trust and dedication and empowers socialisation in the organisation (Wang et al., 2011). Notwithstanding noteworthy confirmation of a collectivist society and its manifestation in the Saudi banks in social collaboration and diverse socialisation exercises, Saudi banks are involved in a solid progressive hierarchical structure in that combines basic leadership and a dictatorial management approach, which is generally predominant in all layers of the management hierarchy.

7.2.3.2 Externalisation Process (Tacit-Explicit)

The process for making TK explicit is externalisation. Weir and Hutchings (2005), expressed doubt whether the idea of externalisation as utilised in Nonaka's model functions also in the Arab setting. The fact of the matter is that a considerable amount of systems now exists in virtual form. The process of externalisation is a persistent one in which the information base does not move automatically from tacit to explicit status, but rather can move as the meanings of social circumstances change from time to time. Accordingly, some information can remain tacit yet accessible, while other learning can surface as explicit and after that return, according to circumstances.

There is additionally in Arab societies a high resistance to uncertainty, which requires connections to be kept up, despite the fact that a specific association may have ended unsuccessfully. Middle Easterners have a tendency to want to maintain their image to be good in job circumstances, and to hold on to a winning hand until there is a clear requirement for disclosure. Within relations of trust, on a basic level, all learning might be accessible colleagues—even learning which, in a Western setting, would be kept tacit by nature. In any case, these circumstances are represented by the way of the relationships, instead of by formal guidelines or judgments of business significance.

The findings of this study showed externalisation as the main antecedent for the conversion of tacit (TK) to explicit knowledge (EK) in the Saudi banks. In the organisational setting, the externalisation process can be accomplished through encouraging inventive and helpful discussions among individuals and groups. The results of this study show that the TK of staff, partners, and individuals were changed over into EK via face-to-face and online discussion in the Saudi banks. 66.4% of the respondents expressed that they received assistance from specialised bank's employees in routine interchanges with each other in the bank. These results support Salmador and Bueno's (2007) study. In Saudi banks, the knowledge of experts is made explicit through change implicit into express knowledge by recording the results of exchanges. Members are asked to record and report the results of their discourses in gatherings, classes and preparation programmes. The results of internal projects are condensed in reports and sent by email as periodic books/pamphlets to all employees. However, access to the results of outside projects is restricted, as some information is provided only to directors and formal reports are not entered into any database and so not open to all employees. In this way, learning from outside events is confined to staff that attend them.

According to Glisby and Holden (2003), knowledge in Japan is created in communities of practice, exists in tacit form and cannot be distinguished without loss of legitimacy. The author proposes that the same is true in Saudi Arabia. Glisby and Holden (2003) have contended that as opposed to endeavouring to make TK explicit, attention ought to be paid to making the EK accessible. However, such a circumstance cannot be guaranteed in Saudi Arabia since, similar to Japan, interpersonal relationships are formed over a long period and the development of trust that happens at the same time suggests that information will just be imparted to a select few.

7.2.3.3 Combination Process (Explicit-Explicit)

The combination process reformulates EK into a purer and more helpful shape for the bank and its employees. Saudi banks conduct specific exercises to execute this process, for example, the constant upgrading of databases, systems and reports utilising the overhauled guidelines and reports from top management on every applicable issue, which are spread to employees by means of messages and intermittent reports. Banks are likewise quick to get important administrative and banking reports translated from various languages. Specialised functions, for example, correspondence, data innovation, or data management, are responsible for managing such procedures.

According to Glisby and Holden (2003), combining information from all members of the organisation has effective roots in unmistakable Japanese management exercises and this may not have any significant bearing universally. This process may play an extraordinary part in Arab business organisations for the apparent reason that the business organisation, in general, is organised along familial lines and directly connected to the family and its internal and external relations. Accordingly, it is acknowledged that power and expertise are concentrated and that, regardless, the opinions of junior individuals are probably going to contain significant components. The findings of this study showed combination as an insignificant factor.

To confirm the research model, this study adopted Confirmatory Factor Analysis (CFA) and regression techniques. Thus, all findings of this study were based on the empirical results of these techniques. CFA offered confirmation of the latency of KC constructs established by this study. For example, the CFA findings of the hypothesised measurement model to examine the KC construct consisting of socialisation, externalisation, combination, and internalisation processes proved that these constructs are reliable and sufficient to test the relationship (see Figure 5.1). In addition, Table 5.9

shows all the model fit values, which support the validity of the four domains of the knowledge creation process. According to the recommended threshold values of Kline (2011) path coefficients ≥ 0.10 have a low influence, path coefficients ≥ 0.30 have an average influence, and path coefficients ≥ 0.50 have a high influence. The path coefficients of the items (including item combinations) confirmed that the measurement model sufficiently explained the sample data in the Saudi banking sector.

After evaluation of the measurement model through CFA, investigations of hypothesised relationships between the constructs were performed using regression analysis. The findings of this study indicate that each of the SECI processes positively influences organisational creativity (OC), however, the share of every process is different (see Table 6.7). The combination process had a positive effect, but it was insignificant. Weir and Hutchings (2005) prove the limited applicability of combination in non-Japanese contexts. In addition, researchers examining the knowledge creation processes (KCP) have proposed that all SECI processes strongly support creativity and innovation (Darroch & McNaughton, 2002; Lee & Choi, 2003; Bueno et al., 2008; Xu et al., 2010; Richtner & Ahlstrom, 2010). However, analyses examining the association among each procedure of SECI showed that not all had the same effect and a number of studies suggest that some processes may even have a negative influence (Refaey, 2002; Schulze & Hoegl, 2008; Ng et al., 2011). It was also proposed that associates with creativity in developing nations could be unique for those countries but not necessarily for developed countries. Thus, this study starts by exploring the character of the creativity process in the Saudi banking sector, and then examines the associations among each procedure of SECI model and creativity. The results of this study show that the internalisation, externalisation, and socialisation processes have a more significant role in Saudi banks than the combination process. Saudi banks were enthusiastic about applying these processes because of their importance in banking applications and they are widespread the nation over. These results for the most

part support those of Glisby and Holden (2003); Weir and Hutchings (2005); Haag et al. (2010) and Andreeva and Ikhilchik (2011). These studies suggest that the SECI model is not all-inclusive and that not every one of its process has a similar significance in different business and social settings.

In terms of theoretical conclusions from these finding, the absence of empirically confirmed scales in the setting of knowledge-intensive Saudi banks further increases the need for this study.

An organisation's innovativeness is determined by its skill in recombining current knowledge (technologies). There are two separate kinds of recombinant capabilities; organisations could innovate through recombinant creation, by creating technical combinations new to the business, or organisations might innovate through recombinant recycling, for example through reconfiguring combinations previously recognised by the organisation (Gianluca & Elisa, 2013). The aim of this study is to analyse the impact of organisational culture and the knowledge creation process on organisational creativity and performance in knowledge-intensive banks. Thus, the forces of both forms of capability such as the degree of integration and the variety of its knowledge base have not been analysed. To sum up, the present study does not fit into this strand of research.

7.2.3.4 Internalisation Process (Explicit-Tacit)

The internalisation process of Nonaka's model alludes to the epitomising of EK into TK (Nonaka & Takeuchi, 1995) and includes learning-by-doing and preparing to get to the information of the whole organisation (Nonaka & Konno, 1998). Glisby and Holden (2003) propose that this process does not have universal application. Internalisation in Arab management is typically experienced in informal ways. According to Islamic thoughts, the practices that work in one setting can become models for other more formal

circumstances. The crucial framework of every one of these practices is derived from Islam, which is a religion of practice rather than authoritative opinion and of consideration. Therefore, the way managers' act is, in general, criteria for the way they are—it is both the confirmation and the declaration (Weir & Hutachings, 2005).

According to Nonaka and Takeuchi (1995), information internalisation is firmly identified with learning by doing. Any expert broker needs to perform numerous activates, for example, managing corporate and individual clients, assessing economic conditions and giving suitable financial guidance. For this, banks provide the ability advancement preparing to staff with particular emphasis on the related and valuable educational modules in light of the needs of the banking industry. However, as far as the internalisation process in Saudi banking is concerned, staff tend to internalise recently learned information as a resource for future purposes in the face-to-face discourses, at work and off the job training (Tsai & Li, 2007).

Saudi banks likewise support staff learning and advancement in the organisation. For example, the findings show the relationship between learning and the KCP is highly positive and significant. This finding is in concurrence with Alipour et al. (2011) who found that learning encourages information procurement in a knowledge creation process (KCP), as without it, new knowledge cannot be made. In this respect, it is argued that 'learning by doing' is much easier in learning organisations than non-learning organisations, since they are not prepared to convert EK to TK on a standard basis (Nonaka & Takeuchi, 1995).

Banks in Saudi Arabia urge members to cover EK by concentrating on getting the results of preparing projects, workshops and databases, and by masterminding meetings to clarify the substance of related reports and records. Banks usually support staff to go to basic banking programmes e.g. credit, client administration and corporate. Interestingly,

banks do not formally support postgraduate degrees, e.g. MSc or PhD, as these academic degrees are unnecessary for a banking job (Chapter 5: Table 5.1). Workers, nevertheless, highlighted the significance of handouts and presents as sources to furnish them with upgraded facts and to support their own vision. Internalising information is likewise identified with learning by doing, so training at work has an imperative part (Nonaka & Takeuchi, 1995). In the banking sector, obtaining pertinent knowledge from training programmes and databases is a critical aspect of job training.

In this study, 78.9% of the respondents concurred that the bank upholds learning by doing, and 63.6% of them concurred that the bank forms teams and conducts trials and offers the results to all areas of the bank. Moreover, 83.1% of workers understand the ideas of others better by training. These outcomes are in concurrence with Nonaka and Takeuchi (1995) and Tsai and Li (2007).

7.2.4 Mediating Role of KCP and Organisational Creativity

This study analyses the degree of KM activities in the banking industry of Saudi Arabia. In this process, the impacts of organisational culture (collaboration, trust and learning) on KC and creativity are examined, along with the effect of knowledge creation and organisational creativity on performance. Zheng et al. (2010) proposed that there is a gap in the literature with respect to the mediation of KM processes between various organisational parts and performance. To fill such gaps, they investigated the mediating effect of KM processes between the relationship of organisational culture, structure and system with performance. They utilised social measures, for example, consistency, mission, association and flexibility as the measurements of culture presented by Denison (1995) in US and South Asian social settings. This study used different cultural dimensions, such as collaboration, trust and learning. Lee and Choi (2003), using a sample of various industries, used these cultural dimensions also. By reviewing the literature, the

author did not find any study investigating the mediating role of KCP and creativity between organisational culture and performance in a specific business context, such as the banking industry.

The research model of this study integrates organisational creativity (OC), since it is the seed or germ of all advancement and innovation (Amabile et al., 1996). In addition, OC is at the very heart of KM (Gurteen, 1998) and creativity changes knowledge into business value (Lee & Choi, 2003). Disregarding OC can rapidly undermine a business. The association between KC and OC has generally been given little consideration, notwithstanding its high value (Vicari & Troilo, 2000). Testing the mediating role of KCP and creativity links organisational culture with organisational creativity and the knowledge creation process with performance. This means that the relationship between organisational culture and performance is found to be indirect. Therefore, the knowledge creation process plays the role of an intermediate variable to mediate the relationships between the independent variables of organisational culture and the dependent variable of organisational creativity.

The empirical results of this study show that KCP mediate between organisational culture (collaboration, trust and learning) and creativity in the Saudi banking industry. The present study builds up a mediated relationship between organisational culture and creativity and between KCP and organisational performance that has been affirmed through empirical analysis. The study determines the prospective mediation effects of KCP and creativity, which has some implications for theory. In addition, creativity may be considered as a full mediator in the relationship between organisational culture and organisational performance. Tseng (2010) studied three types of organisational culture: hierarchical, clan and adhocracy. Her results showed that a culture of adhocracy affects KC and improves organisational performance (OP). In addition, Nold (2012) supported

the hypothesis that organisational culture enables KM, which in turn influences OP. Zheng et al. (2010) recommended that the mediating impacts of knowledge management practices between the relationship of organisational culture and performance should be estimated. Besides, it was proposed earlier that the organisational culture has a positive impact on KC and creativity and as a result, KC and creativity improve the performance of an organisation.

7.2.5 Aspects of Organisational Creativity and Organisational Performance in the Saudi Banks

The results of this study show that organisational creativity (OC) is significantly and positively related to organisational performance (OP) in the Saudi banks. With a specific end goal to accomplish a superior comprehension of KM performance, organisations ought to endeavour to connect KC with mediator results (Damanpour, 1991). An essential mediator is OC, which gives a key to the comprehension of direct and indirect effects (Woodman et al., 1993).

The findings (Chapter 6: Table 6.9) show that the independent variable (Organisational Creativity) was positively and significantly correlated with the dependent variable of organisational performance (OC on OP: β= 0.291, P-value <0.001). Moreover, OC explains 24.9% of the total variance in organisational performance. In addition, the goodness-of-fit of the general model was acceptable, on the grounds that $\chi 2$/d.f. <5 and GFI, AGFI and NFI are around 0.90, with the RMR smaller than 0.05 (Chapter 5: Table 5.9). OC, which is firmly connected to knowledge (Leonard & Sensiper, 1998), could be viewed as an important organisational capacity (Amabile, 1998); a possible source of organisational effectiveness (Woodman et al., 1993) and a source of competitive advantage (Leonard & Straus, 1997). Innovation-connected OC is a critical variable and assumes a significant part in the improvement process keeping in mind the end goal of

the achievement a competitive advantage of organisations (Woodman et al., 1993). It follows that those processes could be critical to the Saudi banking industry.

The literature review uncovered that OC is created in huge part from its OP, while the creativity of an organisation likewise influences the viability of the OP (Murphy et al., 1996; Quinn et al., 1996; Davenport, 1999; Shani et al., 2000). This study shows that OC is positively and statistically significant connected to OP. This outcome is in accordance with past studies (e.g., Shani et al., 2000; Lee & Choi, 2003; Theriou et al. 2011; Shih & Chou 2012; Berraies et al., 2014). For instance, Shani et al. (2000) introduce a model, which links OC and OP. Their result suggests that managers consider OC with the specific end goal of improving OP. These scholars generally propose that OC adds to the OP and management insight that enhances the presence of information throughout an organisation. Thus, OC plays a noteworthy part in giving vision and information sharing and supporting productive OP in the Saudi banks.

The findings of this study on creativity and Saudi banks' performance demonstrated that the level of creativity and performance from the perspective of the study respondents was high. The reason may be the desire of the banks to enhance performance by attracting sufficient deposits through improving creativity and innovation in order to attract the greatest number of clients. About 85% of respondents concurred that the bank dynamically generates novel and useful ideas (services), while, 82.7% of them confirmed that the bank has created many novel and useful ideas (services) (Chapter 5: Table 5.2). OP, as indicated by Lee and Choi (2003); can be assessed through the general achievement, growth rate, market share, productivity, and profitability. In the Saudi banking sector, there is evidence of change and improvement through the last decade due to huge government spending. It is obvious from this study that their ability to play a key role in the economy relies on their dedication to KM. In general, the findings of this study

confirm prior studies by Lee and Choi (2003); Daud and yousoff (2010); Theriou et al. (2011); Soon and Zainol (2011); Shih and Chou (2012); Berraies et al. (2014); Issam and Al-Makhadmah (2015) and Shahzad et al. (2016).

7.3 Overview of the SECI Model of Knowledge Creation and its Applicability in Saudi Cultural Context

The model testing comes about over the adequacy of the hypothesised factor structure using a confirmatory factor analysis (CFA) and the existence KCP in Saudi banks. According to the results of this present study, a model of knowledge creation (SECI) (i.e. socialisation, externalisation, and internalisation) performs an effective role in the KC inside Saudi banks. These results were in agreement with the literature, suggesting that organisational KC happens when each of the four modes of KCP is "authoritatively" prevailing to achieve a ceaseless cycle (Nonaka et al., 1994; Nonaka & Takeuchi, 1995).

The confirmation of the SECI model in Saudi banks exhibited that KC by the four processes is not solely a Japanese marvel, but can likewise be reasonable in the developing nations' organisations. These outcomes support Von Krogh et al. (2000); Glisby and Holden (2003); Haag et al. (2010); Andreeva and Ikhilchik (2011) and Easa and Fincham, (2012), who propose that the SECI model is 'generally practical' if the correct setting of information sharing is given.

The results from the quantitative techniques additionally demonstrated that the positivist view supports Saudi banks in the usage of the KC framework inside the banking sector. The outcomes of this study indicate that the internalisation, socialisation and externalisation processes have strongest influence in Saudi banks than the combination process. As opposed to the Islamic banks, commercial banks were more keen to execute these processes, as a result of their wider range of banking operations and their wide

spread over the country. These outcomes generally support the results of Glisby and Holden (2003), Weir and Hutchings (2005), Andreeva and Ikhilchik (2011), and Easa and Fincham, (2012) which all suggest that the SECI model is suitable for use in different cultural and business settings. Despite the fact that Hofstede et al. (2010) claim that people from Arab culture manifest a collectivist rather than an individualist social structure, in Saudi banks, the technique of combination was limited. Informal systems among specialists were limited because of the absence of validation in combination action, generally due to the considerable high power distance of chiefs. This reveals that the character of business could affect the function of each SECI process. Official meetings among members are also required to achieve their work; nevertheless, informal and social activities among them had less support, in spite of the fact that they are fundamental for the development of trust. Hence, literature has highlighted that banks in Canada, Libya, Malaysia, and the UAE need to build organisational societies to enhance the learning exchange.

Another issue that attracted attention was the way in which the nature of the task can affect the use of every process. So far, rotation of the staff has not regularly happened in Saudi banks, principally because of the cost connected with it. To express the matter succinctly, banks in Saudi Arabia represented the path in which the multifaceted design of culture affects information exchange. In this unique situation, it was shown that social values connected with firms and jobs were commonly associated, mutually dependent and in some cases, conflicting with each other. As claimed before, notwithstanding the way that Saudi nationals largely take part in group-based socialisation, managers exert strong power with respect to their subordinates with the end goal of controlling their informed activity. This shows managers need trust in their subordinates, considering that when informed association happens, it will probably be concerned with something outside the work related setting. The social values connected with banking establishments rely

upon data being secure and classified and, thus, managers largely emphasise formal over informal learning. Besides, rotation of staff was confined to the area requiring a lower level of specialism, including customer services, and was occasionally included in more complex areas, including credit.

The performance of SECI processes in banks worldwide differs, according to every nation's approach. For example, commercial banks in Saudi Arabia focused more on the internalisation process. However, as clarified in Chapter 2, this process was not embraced by the Tiger Bank in Malaysia. Furthermore, the socialisation process was not adopted by the Camel Bank, nor was the combination process by the Asian Development Bank. In Mauritius, there was no representation of the processes of combination and externalisation, whereas in Tunisia, in the stabilise setting of a culture of knowledge sharing and encouraging the internal and external organisation measures, all processes of SECI were endorsed. Michiko and Tokyo-Mitsubishi were some Japanese banks that focused more on the socialisation process. Banks in Germany and the USA focus more on the process of externalisation by systematising the information of people whereas, Tunisian banks do not give adequate attention to the grievances of customers. In this way, the variations in the operation of the SECI demonstrated in global banking could have a basis in of the differences in culture, or even among organisations inside the same culture, e.g. Tiger and Camel Banks in Malaysia.

Despite the fact that banks had various methods for acquiring external information, e.g. through the organisation with customers, correspondence with outside bodies or recording outside information was limited. This emphasises that Saudi banks, like most Tunisian and Japanese banks, do not give adequate consideration to recording outside information and are not at all like US banks, which focus more on outside learning. Portuguese banks may potentially focus more on expanding access to internal information

rather than increasing new information from the outside. Nonetheless, this study confirms the conclusions of Nonaka et al. (2000) and Von Krogh et al. (2012) who argued that managers determine the extent to which an organisation can apply the SECI model. Managers in Saudi banks both have positive and negative impacts on the working of each SECI process. The organisation of banks offered time, space and additionally risks (Ba) to encourage personal dialogue through offering a place and internal and external training areas to advance collaboration of staff within the same area, and by allowing specialists to do informal talks before or after working hours. Ba was, moreover, offered by arranging and passing on information via PCs, the web and the intranet. In addition, directors upheld the recording of outcomes of internal plans, updating bank databases and offering simple induction to these databases.

In order to empower knowledge management agents Saudi banks, like banks working in developed countries, need to build up an information culture that similarly concentrates on the four modes of SECI model. The above argument is a confirmation that the utilisation of the SECI model is reasonable in Saudi banks, despite the fact that the emphasis on one process rather than another is reliant depends on the national culture, the support of the managers and nature of the task. The findings give credibility to the proposal of Nonaka and Takeuchi (1995); Nonaka et al. (2000) that the role performed by culture and management cannot be disregarded if the effective utilisation of SECI is to be ensured.

Nonaka and Takeuchi (1995) built up the socialisation, externalisation, combination, internalisation (SECI) model as a system for understanding effective ways to deal with knowledge management. Glisby and Holden (2003) studied their model and contended that the SECI model was not universally appropriate, but rather depended on a specifically Japanese model of knowledge management that has some application to industrialised

Western countries yet may not be of value in diverse cultures. Certainly, knowledge management works differently in various cultural settings, yet there are components of the SECI that, as this study demonstrates, do have application in the Arab world. Conversely, Weir and Hutchings (2005) in their investigation of the relevance of the SECI model in Chinese and Arab settings propose that KM is routinely practised in both China and the Arab world and in thus presume that socialisation works successfully in these unique situations. They did not say which nations were included in their study, since the Arab world incorporates 23 countries. Likewise, they assert that in the Arab culture, externalisation does not work precisely as it should, as indicated by the SECI model. Weir and Hutchings (2005) explain that combination happens effectively in Arab settings but does not function well in the Chinese. They additionally report that in the Arab setting, job rotation is considered a useful device; however, it is not generally spread. In addition, it is normally not intended to change the member's skills altogether, so the emphasis is still on specialists.

The present study findings show that the SECI model is applicable in Saudi Arabia and only the combination process has an insignificant effect. Andreeva and Ikhilchik (2011) supported these findings. The SECI model turned out to be extremely powerful and it appears to have been acknowledged by most of the knowledge management field as generally legitimate in theory and in application (Von Krogh et al., 2000).

7.4 Chapter Summary

The present study analysed the relationships among KM variables, to assess how organisational culture factors affect organisational performance. The essential messages to arise from this study are as follows. (1) The organisational culture factors (trust, learning and collaboration) are found to be crucial for KC. (2) These factors of organisational culture have an indirect effect on organisational performance. (3) The four modes of SECI are found to be positively related to organisational creativity, which is positively linked with organisational performance. (4) These four modes have an indirect effect on organisational performance. (5) The findings of this study confirm that Saudi banks will be able to attain strategic benefits of KM through effective KC processes. Finally, the SECI model does have application in Saudi Arabia. The practical implications, theoretical contributions, limitations, and conceivable future research are presented in the next chapter.

CHAPTER 8: CONCLUSIONS

8.1 Introduction

The aim of this study was to analyse the relationship between organisational culture, the knowledge creation process (KCP) and firm performance and the role of KCP and creativity in this relationship. The emphasis was on KCP, specifically socialisation, externalisation, combination and internalisation in the context of domestic banks operating in Saudi Arabia. In terms of methodology, different from past studies, which generally used Exploratory Factor Analysis (EFA), the present study constructed a model in accordance with the literature review and then confirmed the model's goodness of fit. Thus, the study is a Confirmatory Factor Analysis (CFA)-based one addressing topics that are vital and novel in the business field. The findings not only provide a basis for further research in the field, but also have implications for chiefs at Saudi banks looking for management knowledge.

This study builds up a model that interrelates KM variables. The model incorporates three organisational culture variables: trust, learning, and collaboration. The emphasis is on KCP: socialisation, externalisation, combination, and internalisation. To clarify the relationship between organisational culture and organisational creativity (OC), KCP is joined into the model. In addition, OC is joined into the model as a mediator between KCP and performance. The determination of the variables was based on a sound theoretical foundation and applied to the banking sector in the Kingdom of Saudi Arabia.

The model that best grasps the way of KM is one that Nonaka and Takeuchi (1995) suggested, the SECI model of KC (Aurum et al., 2008). This study used the SECI model for the following reasons: 1) it is one of only a handful of KC theories that investigate the relationships between EK and TK; 2) the model contains knowledge sharing as well as

KC; 3) it has been broadly utilised in research in several areas, for example, organisational learning and new product development (Nonaka et al., 2000; Lee & Choi, 2003). Despite claims of the 'general appropriateness' of the SECI model made by Nonaka and Takeuchi (1995) in the relevance of this model for measuring knowledge creation in different cultural settings was debatable (Glisby & Holden, 2003; Haag et al., 2010; Andreeva & Ikhilchik, 2011; Easa & Fincham, 2012). This study adds to the literature debate on the theoretical context of Nonaka and Takeuchi's (SECI) model, its wider applicability and its effect on organisational performance through creativity.

The Saudi banking sector is a generally more learning concentrated sector than many other sectors, as it contains heterogeneous and essential information capital. The utilisation of Nonaka and Takeuchi's SECI model, for measuring knowledge creation in Saudi knowledge-intensive organisations in overall, and Saudi knowledge-intensive banks in specific, has not been attempted previously.

The outcomes of this study addressed the research questions concerned with the relationships among organisational culture, KCP, organisational creativity and performance and their significance to the Saudi banking sector. This chapter provides the main results of the study and their implications. It also addresses the practical implications and theoretical contributions. The chapter ends with the research limitations and suggestion for future research.

8.2 Summary of Findings

This study was conducted to analyse the connections between the KM variables that form creativeness and organisational performance (OP) in Saudi banks, to help banks' managers to reform successful KM activities. To achieve its purposes, this study suggested a KM model, which includes organisational culture (collaboration, trust and

learning), knowledge creation processes (socialisation, externalisation, combination, and internalisation), organisational creativity, and organisational performance. To confirm the research model, this study adopted CFA and regression techniques. The main findings of this study were as follows:

Organisational culture factors (collaboration, learning and trust) are found to be crucial for KC. In addition, they have indirect positive effects on organisational creativity. Collaboration is positively linked with all the four knowledge creation processes. In particular, learning and trust are significant predictors of all knowledge creation processes. It was found that worker training and advancement, on-the-job, workshops and courses were significant means of internalising EK in routine exercises. This reveals a vital point: all KM projects are strongly dependent on organisational culture. An organisation with an unhealthy cultural environment is likely to fail in its knowledge management programmes or enhancing its organisational performance. When individuals feel that there is no worry or hazard about their position in the exchanging of information, they become even more eager to share it. The externalisation process will be meaningless if trust is not available. Internalisation is pointless if the staff do not give careful consideration to learning. The absence of any of these factors can create real obstacles to knowledge creation and may cause the organisation to fail to establish a fruitful KM framework. Consequently, the Saudi banking industry must guarantee the availability of a suitable organisational culture before the use of KM framework (e.g. programming and equipment). As indicated by Soon and Zainol (2011), learning is the principal promoter of organisational creativity (OC) and organisational performance (OP). Even in a single organisation with a few subsidiaries in various nations, organisational variables may affect in different ways the KCP in every branch (Magnier-Watanable et al., 2011). Subsequently, inspecting in how much each of KM parameters can be powerful is required before the execution of the KM framework in the banking sector.

Regression analysis revealed that the KCP, socialisation, externalisation and internalisation have a powerful part the banks' performance through creativity, in the Saudi banks studied. Additionally, it was found that OC is a driver of firm performance. Therefore, this study supports the idea that the SECI model is applicable worldwide. The findings of this study prove that each of the SECI processes positively influences the OC, however, the share of every process is different.

The findings showed that socialisation is a key antecedent for the exchange of tacit knowledge (TK) in the Saudi banks considered. Saudi banks have implemented a variety of on-job and off-the-job training projects to improve knowledge sharing and exchange. These projects seemed, by all accounts, to be productive for knowledge sharing and exchange through face-to-face talks and discourse with senior and junior staff from various offices and branches.

Regarding the externalisation process, the TK of staff is changed to EK through conversation among different individuals in their usual work. Changing over TK into EK was likewise accomplished through the interest of people in setting their operational plans at the branch level, depending upon the readiness of the branch supervisors.

The combination process had a positive effect, but it was insignificant. Weir and Hutchings (2005) prove the limited applicability of combination in non-Japanese contexts. The present Saudi banking framework permits members to consolidate diverse sorts of EK into purer EK while performing their jobs. For this purpose, the data framework in the banks is being utilised to expand knowledge availability by having a smooth procedure for gathering and updating data.

The internalisation process had the strongest impact and the results of the study indicated that this process helped Saudi banks to internalise explicit knowledge (EK) into TK during KCP.

The findings demonstrate that OC, depicted by usefulness and novelty is significantly and positively correlated to Saudi banks' performance. An organisation's prosperity and survival rely on upon its ability to create new knowledge and afterwards innovation. Knowledge is an organisation's most important asset, since it epitomises intangibles resources, schedules, and innovative procedures that are hard to copy. As according to Nonaka and Takeuchi (1995), effective organisations are those that reliably create new knowledge, spread it generally all through the organisation, and quickly incorporate it into new items, products and services.

In terms of the mediating roles of knowledge creation and creativity, KCP mediates between the organisational culture (collaboration, trust and learning) and creativity in the Saudi banking industry. In addition, creativity mediates between the KC processes and performance. This suggests that the mediators (KCP and creativity) can help to create a chain of credibility between organisational culture and performance.

8.3 Theoretical Contributions

The main theoretical contributions of this study are as follows:

Firstly, one of the significant concerns of this study was to distinguish and look at the connections between organisational culture and each process of KC. Most past studies ignored these relationships, since they assessed KM processes by the utilisation of measures such as the number of created thoughts, ideas or patents. According to Mueller (2012), the association between organisational culture and specific knowledge management processes has not been studied. This study addresses this deficiency by

adopting Nonaka and Takeuchi's (1995) KC model, enabling Saudi banks' members to recognise which organisational factors are basic for their KC processes. Since no organisation can deal with all types of KCP equally well, this study may help to expand particular KC processes such as socialisation or internalisation and enhance Nonaka and Takeuchi's model in the Saudi culture. Furthermore, it helps to fill a significant gap in the literature of empirical evidence that KM makes a difference to organisational performance (Zack et al., 2009).

Secondly, a research model was produced to analyse the knowledge management (KM) of Saudi Arabian banks, incorporating organisational culture, knowledge creation processes, organisational creativity and performance based on empirical studies. Organisational culture is based on collaboration, trust and learning, while the knowledge creation process based on socialisation, externalisation, combination, and internalisation processes. This research is the first to build up an integrated perspective of KM in the Saudi Arabian context. The suggested model is original in light of the fact that KM research in this field is still in its early stage. On the other hand, it is important for researchers in the KM field, since the KM model can be a starting point for further empirical research. Moreover, it exploited a process-oriented view of knowledge by incorporating Nonaka and Takeuchi's model (SECI). Although handling knowledge depends on processes more than substance, insufficient empirical analyses have been conducted from a process-oriented viewpoint. The outcomes of this study enrich the literature in the field of KM, highlight the critical role of the knowledge creation process, and provide empirical support for Nonaka's (1994) theory of knowledge creation.

Thirdly, the utilisation of Nonaka and Takeuchi's model (SECI), for measuring knowledge creation in the Saudi knowledge-intensive organisations overall, and Saudi knowledge-intensive banks in specific, has not been done other than in this empirical

study. The present study is the first that has completely examined the theorised association between organisational culture and the KCP founded on socialisation (KCS), externalisation (KCE), combination (KCC), and internalisation (KCI) in Saudi knowledge-intensive banks.

Confirmatory factor analysis (CFA) has offered confirmation of the latency of both KC and organisational culture constructs established by this study. For instance, the CFA findings of the hypothesised measurement models to examine the KC construct consisting of socialisation, externalisation, combination, and internalisation processes, and the organisational culture construct, based on collaboration, trust and learning, proved that both constructs are reliable and sufficient to test the relationship. Data testing was accomplished and conducted by the preliminary suggested theoretical model and pilot feedback statistics. In terms of contribution, the absence of empirically confirmed scales in the setting of knowledge-intensive Saudi banks further increases the need for this study.

Fourthly, the investigation of Saudi banks' implementation of and familiarity with KM will be important for organisations in developing nations to control their KM strategy. For example, this analysis confirmed with reference to Saudi Arabia, that the cultural environment of organisations is a key to their achievement. A collaborative, trusting and learning environment inside organisations will positively affect banks' performance. This significance indicates that firms in developing nations can create and change their processes to amplify their organisational performance (OP). Organisations from developed nations can likewise profit from the findings of this study when they outsource their partnership processes to developing nations. In addition, making contacts (networking) in Arab culture is essential to the achievement of KM and OP. This is consistent with Ibarra and Hunter's (2007) theory, which confirms that acting through networks implies the impotence of ‘who you know’ instead of ‘what you know’, a

phenomenon called "Wasta" in the Arab world (Weir & Hutchings, 2005). The findings demonstrate the potential mediation effect of knowledge creation process. Thus, wasta enables the flow of KC in and between organisations in the extremely networked Saudi culture.

Finally, the author contends that matter that has been neglected in the KM literature is the mechanism of the impact of organisational culture on the OP. It has been recognised in the literature that organisational culture can positively influence performance. The present study builds up a mediated relationship between organisational culture and creativity and between KCP and OP that has been confirmed through empirical analysis. The study determines the prospective mediation effects of KCP and creativity. This has some implications for theory.

Researchers have explored the impact of organisational KCP on firm performance. Anand et al. (2010) obtained that specific process change practices encourage KC, which can then impact OP results. Cua et al. (2001) explored that the utilisation of KC practices significantly impacts OP results. KC contributes to the OP by generating new processes (Shah & Ward, 2003; Zu et al., 2008; Anand et al., 2010). However, these researchers have not completely clarified the way in which KC impacts OP, or perhaps, they have just hypothesised about the impact of KC on OP, informed by the dynamic theory of organisational KC. The present study adds to the literature by empirically setting up the missing part that the previously mentioned studies did not explore, in particular, the path or mechanism by which organisational culture improves OP through KCP and the path or mechanism by which KC processes impact OP. This is essential, since this missing information adds more conceptual cohesion to these studies, pointing the way for future studies that will study different part of the connections among organisational culture, knowledge creation, organisational creativity and firm performance.

8.4 Practical Implications

Because no such study has been done before in the Saudi Arabian banking sector and as indicated by the results, the author gives a few proposals to the Saudi banking sector to deal with their knowledge more efficiently and so maximise organisational creativity, which is the seed of innovation. These suggestions can likewise be utilised as a guide by banks or organisations in developing nations.

The findings highlight the significance of culture as a feature of organisation assets in their association with performance. Specifically, the particular connections examined give directions for managers to suitably comprehend the fit between the culture and the strategic direction of the firm. As contended before, only after understanding the cultural variables, can supervisors handle the matters of cultural power (Sorensen, 2002).

This study also provides a clearer recognising of how KC practices can influence firm performance. With regard to process improvement, organisations cannot be expected to fundamentally enhance operational performance without encouraging the creation of knowledge through KC processes. Many organisations have tried to repeat the practices of other successful firms in order to improve OP. Nonetheless, if such best practices do not deliver organisational knowledge, it is likely that the impact on performance will be little or none. This clarifies, at any rate partially, why some firms utilising prescribed procedures can accomplish performance improvements while many other firms using the same accepted procedures in the same industry are not able to accomplish noteworthy performance improvements. This study emphasises the need for organisations occupied in process improvements to consider advancing practices that will encourage organisational KC. As indicated by Nonaka (1994), the value of the interface between employees amid process improvement creativeness is just as beneficial as the tacit knowledge (TK) that can be captured and exchanged. Nonaka (1994) contends that the

way to secure TK is through experience. According to Nonaka (1994:20), without some type of shared understanding, it is very hard for individuals to share each other's view. Process enhancement practices provide a setting to encourage shared experiences (Linderman et al., 2004; Anand et al., 2010). This suggests that process improvement activities have two critical parts; 1) improving TK within persons within shared knowledge and 2) improving organisational KC through the foundation of experience spirals.

Due to the significant role of KCP in OP through organisational creativity, this plays an essential part in giving vision and data sharing, and supports useful organisational performance, since effective firms are those that constantly generate new information (Nonaka & Takeuchi, 1995). One of the ways to enhance knowledge creation in organisations is with the right KM strategy to support business. Organisations use KM to achieve one of two objectives, namely, to improve efficiency or to improve innovation. The former normally is used in organisations that create value through cost leadership while implementation of the latter is via differentiation in terms of quality and innovation. The adoption of KM should support the objectives and business plans of organisations (Davenport & Prusak, 1998; Zack, 1999).

Another way of upgrading KC in organisations is by means of performing the applicable leadership actions. Usually, leaders impact representatives' work conduct (Yukl, 2002). In order to improve information creation, organisations need to develop an organisational learning culture, which provides appropriate conditions for workers to learn. Knowledge creation is a dynamic process and subsequently, it is constantly fundamental to unlearn existing projects and to learn new arrangements of abilities (Bhatt, 2000). Learning is one of the key components in KC. The learning process in the organisation does not occur naturally, but rather it requires legitimately set favourable situations or conditions to

support learning throughout the organisation, to create a specific organisational learning culture. The capability of getting and using knowledge is the engine driving the capacity of banks to provide value for clients (Ping & Kebao, 2010; Shih et al., 2010). Furthermore, managers ought to consider the advancement of a learning culture and a trustful relationship among members in the organisation. In addition, banks ought to receive motivating incentives and rewards, which are the most basic way of empowering KCP.

The present study builds up a practical model that clarifies the impacts of organisational culture and KCP on OP. From a professional point of view, this study gives a chance to bank chiefs to better perceive the empowering agents for upgrading KC in their banks. The knowledge creation model (SECI) is a widespread model and its four processes are affirmed through the factor analysis (Chapter 5), yet the utilisation of each process is dependent on the social setting, managerial support, and the type of work. In general, a collectivist culture is expected to be more inclined to socialisation than an individualist culture. However, the power distance between management and their employees constrains the sharing of information, particularly by informal means, because of the absence of trust leading to suspicion that individuals may not be talking purely about business issues. By restricting informal interactions, the inspiration for accomplishment is likewise constrained. In social settings outside the working environment, members attempt to move away from communication with their supervisors, due to the absence of trust. When chiefs asked their representatives to document the results of any talks, because of a fear of committing errors, the workers were extremely careful to record precisely what they were asked to do, without reference to input from directors, or other helpful informal learning. It was likewise noticed that the practices adopted in on organisation could influence the utilisation of each process of knowledge creation. For instance, workforce rotation, as a means of increasing personal cooperation, can pose problems in the case of members who hold vital positions, for example, credit occupations,

because of the high cost of training such employees, or client benefit staff, because of the time needed to build social relations with clients. It was evident that a few activities satisfy more than one process of the SECI model, yet they depend on the business setting. For instance, personal talks in manufacturing businesses may happen less regularly during employment training that concentrates on the work with machines (Martin-de-Castro et al., 2007). Nevertheless, it was found that in banking, as administrative work, training is a successful component to improve communication among members.

The knowledge creation model (SECI) applies not only to inside information but also to outside information from clients, competitors and other external bodies. External workshops and training programmes allowed employees to get new information from partners from different organisations and from external specialists. Client feedback is likewise vital to building up organisational performance (OP). The absence of documentation of outside learning accessible to all employees, however, limits the advantages of this external information to just the individuals who were specifically engaged in the dialogue.

This study enables us to make essential managerial proposals for enhancing organisational performance. Banks' managers can tackle the positive effects of the relationship found that exist between organisational culture and creativity. Supervisors strive to expand creativeness of numerous types and at different levels in their organisations. We may propose that organisational creativity can be promoted by cultivating a favourable organisational culture. The outcomes from the survey used in this study demonstrate that it is possible to establish a creative organisational culture with active encouragement and support from managers. A creative culture is open to the opportunities and risks of creativeness and new thoughts. An organisation that perceives and supports the uniqueness of its members and enables bosses to follow their vision will

have a creative culture. The presence of such an atmosphere and culture will motivate and reinforce creativity in business. A review of the literature on some discussions of culture among supervisors revealed that some for generally used systems and activities conducive to energising a creative culture. One suggested that leaders ought to encourage members to offer new thoughts and reward them as appropriate and they can likewise set up a situation where new thoughts are transparently and unreservedly shared. Another thought manages' communication ought to be open and there should be cross-departmental co-operation. All individuals from the organisation can take an interest in creativity. In addition, use sources of creativity, such as clients, research establishments and competitors, can be used as opposed to depending solely on internal sources.

8.5 Challenges, Limitations and Suggestions for Future Research

The first and most essential challenge was to get authorisation for the data collection. In order to gain access to the Saudi banks, it was necessary to obtain formal authorisation to visit thirty-two branches of the two selected banks. This process took about one month. The author first utilised an online survey, but the response rate was too low. Subsequently, a paper questionnaire was used, as advised by the top management. Gathering the 262 questionnaires were time-consuming and required a lot of travelling since the thirty-two branches of the selected banks were spread over a large geographical area.

In spite of the fact that this study answered the research questions and accomplished its objectives, it is not without specific limitations and constraints, which were unavoidable and do not invalidate the results of the study, but may give useful guidelines to future research. Time and cost constraints prevented the author from performing comparisons between Saudi banks and other banks in developed nations, which may have a different culture.

Despite the fact that a huge amount of empirical study has been performed on the KM research, there was no identifiable research methodology that could serve the goal of the study (Wallace et al., 2011). The researcher therefore expressly and certainly expressed the need for identifying the suitable methodology for the present trend in KM study such as, CFA for removing factors in an attempt to take out as much common variance as possible in the first factor.

The study concentrates on large service firms (banks). The outcomes may be different in small or medium-sized firms. In addition, the findings of this study are restricted to Saudi banks. The generalisation from a Saudi setting to different nations or business settings might be debatable.

Finally, the findings were obtained from the study of empirical data gathered by a questionnaire. Regardless of efforts to guarantee that all measurement elements were clear throughout the pre-testing of the questionnaire in the pilot study, the researcher had no control over the understanding of the measurement items by the participants. This type of limitation challenges all researchers who use a questionnaire survey method. A noteworthy limitation of this approach is that it depends on respondents' perceptions, which might not reflect the actual situation. In addition, it is worth nothing here that, due to the limited number of female participants in the survey; the researcher could not analyse the effect of gender. Only 1.4% of the respondents were female. This was caused by the difficulty of accessing female respondents, due to the cultural emphasis on privacy for women in Saudi Arabia and the strict separation between genders.

This study only examined the impact of organisational culture and knowledge creation processes on organisational creativity and performance in Saudi banks. For future researchers, it is important to study the utilisation of the SECI model in multi-national organisations with members from various cultures. In addition, it would be valuable to

conduct comparative research between banks in developed and developing nations with different cultures. Additionally, it might be valuable to analyse the utilisation of SECI in various business settings. Focusing on the model in different cultural and business settings would contribute to the debate regarding the universal applicability of the SECI model. Exploring application of the different modes of KC in relation to gender or tasks would likewise give more insight into of how the utilisation of each process could be distinctive.

This study went further than previous studies in investigating a potential mediator in the relationship between organisational culture and performance. However, we did not consider the role potentially played by organisational routines and other conceivable KM processes, for example, knowledge integration and accumulation. Future studies may provide additional insight by investigating other knowledge management processes or organisational variables.

Despite the significant effect of culture on performance, organisational culture in its own right is not sufficient to explain the variance in firms' performance comprehensively. There are other organisational variables which were not apprehended in the present study, which could have a critical impact on organisational performance, such as organisation' size, financial advantage, environmental dynamism, and diversification. In addition, other factors such as institutional (government) encouragement of knowledge management processes would be of interest (Shaft & Vessey, 1998). Institutional support may be extremely useful for Saudi organisations to gain and process knowledge. The investigation of the role played by the Saudi government in helping firms to obtain knowledge is additionally required. Szulanski's (1996) knowledge transfer model which comprises four processes, implementation, initiation, integration, and ramp-up, may be worth taking into account.

While this study has concentrated on specific social characteristics in Saudi Arabian culture, there is an additional need for future research in cross-cultural KM to investigate a more extensive range of cultural impacts on knowledge-sharing conduct and attitudes. In addition, while there are particular social strengths that bind the Arab social order, we are likewise aware that the Arab world also includes numerous diverse ethnic and cultural groups, and therefore it would be valuable to analyse the degree to which qualitatively dissimilar values inside a society affect knowledge sharing.

This study was conducted in commercial banks in Saudi Arabia. Other analysts could conduct studies in both Islamic and commercial banks in Saudi Arabia, in order to see whether the relationship between organisational culture and performance differs in these two sorts of knowledge-intensive banks. Finally, future research ought to examine the conditions under which KM can create a sustainable competitive advantage from the perspective of the resource-based view.

BIBLIOGRAPHY

Ahn, J. H. & Chang, S. G. (2004) Assessing the contribution of knowledge to business performance: The KP3 methodology. *Decision Support Systems*, 36(4), 403-416.

Akhtar, M. H. (2001) Multinational banking in Pakistan. *Global Business Review,* 2(2) 235-242.

AlAmmary, J. & Fung, C. C. (2008) Knowledge management strategic alignment in the Gulf Cooperation Council Countries. *The Electronic Journal of Knowledge Management,* 6(2), 75-84.

Alavi, M. & Leidner, D. E. (2001) Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly,* 25(1) 107-136.

Alavi, M., Kayworth, T. R. & Leidner, D. E. (2006) An empirical examination of the influence of organizational culture on knowledge management practices. *Journal of Management Information Systems*, 22(3), 191-224.

Albaum, G. (1997) The likert scale revisited: An alternate version. *Journal of the Market Research Society*, 39(2), 331-332.

Al-Hakim, L. A. Y. & Hassan, S. (2012) Critical success factors of knowledge management, innovation and organizational performance: An empirical study of the Iraqi mobile telecommunication sector. *British Journal of Economics, Finance and Management Sciences*, 4(1), 31-49.

Ali, H. M. & Ahmad, N. H. (2006) Knowledge management in Malaysian banks: A new paradigm. *Journal of Knowledge Management Practice,* 7(3), 1-13.

Ali, H. M. & Yusof, Z. M. (2004) Knowledge management in Malaysian banks: A study of causes and effects. *Information Development,* 20(3), 161-168.

Alipour, F., Idris, K. & Karimi, R. (2011) Knowledge creation and transfer: Role of learning organization. *International Journal of Business Administration,* 2(3), 61-67.

Alrawi, K. & Elkhatib, S. (2009) Knowledge management practices in the banking industry: Present and future state-case study. *Journal of Knowledge Management Practice*, 10(4), 68-84.

Alvani, S. M. (2009) *General management.* Tehran: Ney Publication.

Alvesson, M. & Karreman, D. (2001) Odd couple: Making sense of the curious concept of knowledge management. *Journal of Management Studies*, 38(7), 995-1018.

Amabile, T. M. (1998) *How to kill creativity*. Boston, MA: Harvard Business School.

Amabile, T. M., Conti, R., Coon, H., Lazenby, J. & Herron, M. (1996) Assessing the work environment for creativity. *Academy of Management Journal*, 39(5), 1154-1184.

Anand, G., Ward, P. T. & Tatikonda, M. V. (2010) Role of explicit and tacit knowledge in Six Sigma projects: An empirical examination of differential project success. *Journal of Operations Management*, 28(4), 303-315.

Anderson, J. C. & Gerbing, D. W. (1982) Some methods for re-specifying measurement models to obtain unidimensional construct measurement. *Journal of Marketing Research*, 19(1). 453-460.

Anderson, J. C. & Gerbing, D. W. (1988) Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-422.

Anderson, N., Potočnik, K. & Zhou, J. (2014) Innovation and creativity in organizations a state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, 40(5), 1297-1333.

Andreeva, T. & Ikhilchik, I. (2011) Applicability of the SECI model of knowledge creation in Russian cultural context: Theoretical analysis. *Knowledge and Process Management*, 18(1), 56-66.

Andriopoulos, C. (2001) Determinants of organisational creativity: A literature review. *Management Decision*, 39(10), 834-841.

Arbuckle, J. L. (1995) *Amos™ 16.0 user's guide.* Chicago: SPSS.

Arbuckle, J. L. (2016) *IBM SPSS Amos 24 user's guide.* Chicago, IL: Amos Development Corporation.

Ardichvili, A., Maurer, M., Li, W., Wentling, T. & Stuedemann, R. (2006) Cultural influences on knowledge sharing through online communities of practice. *Journal of Knowledge Management*, 10(1), 94-107.

Argote, L. & Miron-Spektor, E. (2011) Organizational learning: From experience to knowledge. *Organization Science,* 22(5), 1123-1137.

Armstrong, M. (2004) *Handbook of human resource management practice*, 9th edition. London, United Kingdom: Kogan Press.

Arora, R. (2002) Implementing KM - A balanced score card approach. *Journal of Knowledge Management*, 6(3), 240-249.

Ary, D., Jacobs, L. C. & Razavieh, A. (1996) *Introduction to research in education*, 5th edition. Orlando, Florida: Holt, Rinehart and Winston.

Asmussen, C. G., Foss, N. J. & Pedersen, T. (2013) Knowledge transfer and accommodation effects in multinational corporations evidence from European subsidiaries. *Journal of Management*, 39(6), 1397-1429.

Aulakh, P. S., Kotabe, M. Sahay, A. (1997) Trust and performance in cross-border marketing partnerships. Beamish, P. W. & Killing, J. P. (eds) *Cooperative Strategies: North American Perspectives.* San Francisco, CA: New Lexington Press, 163–196.

Aurum, A., Daneshgar, F. & Ward, J. (2008) Investigating knowledge management practices in software development organisations–An Australian experience. *Information and Software Technology*, 50(6), 511-533.

Barachini, F. (2009) Cultural and social issues for knowledge sharing. *Journal of Knowledge Management*, 13(1), 98-110.

Barley, S. R. & Kunda, G. (1992) Design and devotion: Surges of rational and normative ideologies of control in managerial discourse. *Administrative Science Quarterly*, 37(3), 363-399.

Barney, J. (1991) Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.

Baron, R. M. & Kenny, D. A. (1986) The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

Bartlett, J. E., Kotrlik, J. W. & Higgins, C. C. (2001) Organizational research: Determining appropriate sample size in survey research. *Information Technology, Learning, and Performance Journal*, 19(1), 43-49.

Bartol, K. M., Martin, D. C. & Kromkowski, J. A. (2003) Leadership and the glass ceiling: Gender and ethnic group influences on leader behaviors at middle and executive managerial levels. *Journal of Leadership & Organizational Studies*, 9(3), 8-19.

Baskerville, R. & Dulipovici, A. (2006) The ethics of knowledge transfers and conversions: Property or privacy rights?. In *Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS'06).* Hawaii, 4-7 January 2006, 144-144.

Batiz-Lazo, B. & Woldesenbet, K. (2006) The dynamics of product and process innovations in UK banking. *International Journal of Financial Services Management*, 1(4), 400-421.

Becerra-Fernandez, I. & Sabherwal, R. (2001) Organizational knowledge management: A contingency perspective. *Journal of Management Information Systems*, 18(1), 23-55.

Becerra-Fernandez, I., Gonzalez, A. & Sabherwal, R. (2004) *Knowledge management: Challenges, solutions, and technologies*. Upper Saddle River, NJ: Pearson/Prentice Hall.

Becla, A. (2012) Information society and knowledge-based economy-development level and the main barriers-some remarks. *Economics & Sociology*, 5(1), 125-131.

Beijerse, R. P. (2000) Knowledge management in small and medium-sized companies: Knowledge management for entrepreneurs. *Journal of Knowledge Management*, 4(2), 162-179.

Benbasat, I., Goldstein, D. K. & Mead, M. (1987) The case research strategy in studies of information systems. *MIS Quarterly*, 11(3), 369-386.

Berenson, M. L., Levine, D. M. & Krehbiel, T. C. (2015) *Basic business statistics.* Upper Saddle River, NJ: prentice Hall.

Bergendahl, M. & Magnusson, M. (2015) Creating ideas for innovation: Effects of organizational distance on knowledge creation processes. *Creativity and Innovation Management*, 24(1), 87-101.

Berraies, S., Chaher, M. & Yahia, K. B. (2014) Knowledge management enablers, knowledge creation process and innovation performance: An empirical study in Tunisian information and communication technologies sector. *Business Management and Strategy*, 5(1), 1-21.

Bhatt, G. D. (2000) Information dynamics, learning and knowledge creation in organizations. *The Learning Organization*, 7(2), 89-99.

Bhatt, G. D. (2001) Knowledge management in organizations: Examining the interaction between technologies, techniques, and people. *Journal of Knowledge Management*, 5(1), 68-75.

Bishop, J., Bouchlaghem, D., Glass, J. & Matsumoto, I. (2008) Ensuring the effectiveness of a knowledge management initiative. *Journal of Knowledge Management*, 12(4), 16-29.

Bixler, C. H. (2002) Applying the four pillars of knowledge management. *KM World*, 11(1), 10-20.

Blume, J. & Peipert, J. F. (2003) What your statistician never told you about P-values. *The Journal of the American Association of Gynecologic Laparoscopists*, 10(4), 439-444.

Bollen, K. A. (1989) *Structural equations with latent variables.* New York: JohnWiley & Sons.

Bonifacio, M., Bouquet, P. & Traverso, P. (2002) Enabling distributed knowledge management: Managerial and technological implications. *Novatica and Informatik/Informatique*, 3(1), 1-7.

Bontis, N., Keow, S., W. & Richardson, S. (2000) Intellectual capital and business performance in Malaysian industries. *Journal of Intellectual Capital*, 1(1), 85-100.

Bose, R. (2004) Knowledge management metrics. *Industrial Management & Data Systems*, 104(6), 457-68.

Botha, A., Kourie, D. & Snyman, R. (2008) *Coping with continuous change in the business environment: Knowledge management and knowledge management technology*. Oxford: Elsevier.

Brannick, M. T., Chan, D., Conway, J. M., Lance, C. E. & Spector, P. E. (2010) What is method variance and how can we cope with it? A panel discussion. *Organizational Research Methods*, 13(3), 407-420.

Bratnicka, K. (2013) *Organisational creativity*. PhD Dissertation. University of Economics in Katowice, Poland.

Breyfogle III, F. W. (2003) *Implementing six sigma: Smarter solutions using statistical methods*. Canada: John Wiley & Sons.

Brown, J. S. & Duguid, P. (1991) Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organization Science*, 2(1), 40-57.

Brown, J. S. & Duguid, P. (1998) Organizing knowledge. *California Management Review*, 40(3), 90-111.

Browne, M. W. & Cudeck, R. (1993) Alternative ways of assessing model fit. In Bollen K. & Scott, L. J. (eds) *In testing structural equation models*. Newbury Park, CA: Sage Publications, 136-162.

Bryceson, K. (2007) The online learning environment—A new model using social constructivism and the concept of 'Ba'as a theoretical framework. *Learning Environments Research*, 10(3), 189-206.

Bryman, A. & Bell, E. (2015) *Business research methods*. Oxford, UK: Oxford University Press.

Bryman, A. & Cramer, D. (2005) *Quantitative data analysis with SPSS 12 and 13: A guide for social scientists*. New York: Psychology Press.

Bueno, E., Rodríguez, J. Y. & Salmador, M. P. (2008). Knowledge creation as a dynamic capability: Implications for innovation management and organisational design. *International Journal Management Practice*, 2(1), 72-82.

Bukowitz, W. R. & Williams, R. L. (1999) *The knowledge management fieldbook*. London, UK: Financial Times/Prentice Hall.

Byrne, B. M. (2001) *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum.

Byrne, B. M. (2006) *Structural equation modeling with EQS: Basic concepts, applications, and programming*, 2nd edition. Mahwah, NJ: Lawrence Erlbaum.

Byrne, B. M. (2010) *Structural equation modeling with AMOS: Basic concepts, applications, and programming*, 2nd edition. New York, NY: Taylor & Francis Group.

Cabrera, E. F. & Cabrera, A. (2005) Fostering knowledge sharing through people management practices. *The International Journal of Human Resource Management*, 16(5), 720-735.

Carrillo, P., Robinson, H., Al-Ghassani, A. & Anumba, C. (2004) Knowledge management in UK construction: Strategies, resources and barriers. *Project Management Journal*, 35(1), 46-56.

Carson, D., Gilmore, A., Perry, C. & Gronhaug, K. (2001) *Qualitative marketing research*. London: Sage.

Caruana, A., Morris, M. H. & Vella, A. J. (1998) The effect of centralization and formalization on entrepreneurship in export firms. *Journal of Small Business Management*, 36(1), 16-29.

Cavana, R. Y., Delahaye, B. L. & Sekaran, U. (2001) *Applied business research: Qualitative and quantitative methods*. Milton, Qld: John Wiley & Sons Australia.

Cavusgil, S. T., Calantone, R. J. & Zhao, Y. (2003) Tacit knowledge transfer and firm innovation capability. *Journal of Business & Industrial Marketing*, 18(1), 6-21.

Cebi, F., Aydin, O. F. & Gozlu, S. (2010) Benefits of knowledge management in banking. *Journal of Transnational Management*, 15(4), 308-321.

Ceptureanu, S. & Ceptureanu, E. (2010) Knowledge creation/conversion process. *Review of International Comparative Management*, 1(1), 150-157.

Chae, S. W. (2016) Perceived proximity and trust network on creative performance in virtual collaboration environment. *Procedia Computer Science*, 91(1), 807-812.

Chang, H. H., Hung, C. J. & Hsieh, H. W. (2014) Virtual teams: Cultural adaptation, communication quality, and interpersonal trust. *Total Quality Management & Business Excellence*, 25(11-12), 1318-1335.

Chao, G. T., O'Leary-Kelly, A. M., Wolf, S., Klein, H. J. & Gardner, P. D. (1994) Organizational socialization: Its content and consequences. *Journal of Applied Psychology*, 79(5), 730-743.

Chase, R. (1998) The people factor. *People Management*, 4(2), 38-40.

Chatzoglou, P. D. & Vraimaki, E. (2009) Knowledge-sharing behaviour of bank employees in Greece. *Business Process Management Journal*, 15(2), 245-266.

Chee W., Holden, T., Wilhelmij, P. & Schmidt, R., A. (2000) Where does knowledge management add value?. *Journal of Intellectual Capital,* 1(4), 366-380.

Chen, H. H. & Lee, P. Y. (2008) Drivers of dynamic learning mechanism and dynamic knowledge articulation in alliance organizations. *Electronic Journal of Knowledge Management*, 6(1), 33-40.

Cho, T. & Korte, R. (2014) Managing knowledge performance: Testing the components of a knowledge management system on organizational performance. *Asia Pacific Education Review*, 15(2), 313-327.

Choi, B. & Lee, H. (2003) An empirical investigation of KM styles and their effect on corporate performance. *Information & Management*, 40(5), 403-417.

Choi, B., Poon, S. K. & Davis, J. G. (2008) Effects of knowledge management strategy on organizational performance: A complementarity theory-based approach. *Omega*, 36(2), 235-251.

Chong S. C. (2006) KM critical success factors: A comparison of perceived importance versus implementation in Malaysian ICT companies. *The Learning Organization*, 13(3), 230-256.

Chong, S. C. (2005) *Implementation of knowledge management among Malaysian ICT companies: An empirical study of suceess factors and organisational performance.* PhD Thesis. Multimedia University.

Choo, W. C. & Bontis, N. eds. (2002) *The strategic management of intellectual capital and organizational knowledge*. Oxford, UK: Oxford University Press.

Choo, W. C. & Johnston, R. (2004) Innovation in the knowing organization: A case study of an e-commerce initiative. *Journal of Knowledge Management*, 8(6), 77-92.

Choo, W. C. & Neto, R. (2010) Beyond the ba: Managing enabling contexts in knowledge organizations. *Journal of Knowledge Management*, 14(4), 592-610.

Chow, A. & Drummond, K. J. (2010) Ethical considerations for normal control subjects in MRI research. *Journal of Clinical Neuroscience*, 17(9), 1111-1113.

Chow, C. W., Deng, F. J. & Ho, J. L. (2000) The openness of knowledge sharing within organizations: A comparative study of the United States and the people's republic of China. *Journal of Management Accounting Research*, 12(1), 65-95.

Choy, C. S. & Suk, C. Y. (2005) Critical factors in the successful implementation of knowledge management. *Journal of Knowledge Management Practice*, 6(1), 234-258.

Churchill, G. A. (1996) *Marketing research*, 3rd edition. USA: The Dryden Press.

Clarke, P. & Cooper, M. (2000) Knowledge management and collaboration. *Proceedings of the Third International Conference On Practical Aspects of Knowledge Management.* Basel, 30-31 October 2005, 6-9.

Cochran, W.G. (1977) *Sampling techniques*, 3rd edition. New York: John Wiley and Sons.

Cohen, D. & Laporte, B. (2004) The evolution of the knowledge bank. *Knowledge Management-London*, 7(6), 20-24.

Cohen, W. M. & Levinthal, D. A. (1990) Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152.

Collins, H. M. (1993) The structure of knowledge. *Social Research*, 60(1), 95-116.

Cook, S. D. & Brown, J. S. (1999) Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing. *Organization Science*, 10(4), 381-400.

Cooper, D. R. & Schindler, P. S. (1998) *Business research methods*, 6th edition. New York: McGraw-Hill.

Corfield, A. & Paton, R. (2016) Investigating knowledge management: Can KM really change organisational culture?. *Journal of Knowledge Management*, 20(1), 88-103.

Cortina, J. M., (1993) What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1), 98-103.

Creswell, J. W. (2013) *Research design: Qualitative and mixed methods approaches*. London and Thousand Oaks: Sage Publications.

Crotty, M. (1998) *The foundations of social research: Meaning and perspective in the research process*. London, UK: Sage.

Cua, K. O., McKone, K. E., & Schroeder, R. G. (2001) Relationships between implementation of TQM, JIT, and TPM and manufacturing performance. *Journal of Operations Management*, 19(6), 675-694.

Cummings, L. L. & Bromiley P. (1996) The organizational trust inventory (OTI): Development and validation. In Kramer R. N. & Tyler T. R. (eds) *Trust in organizations*. Thousand Oaks, CA: Sage.

Curado, C. (2008) Perceptions of knowledge management and intellectual capital in the banking industry. *Journal of Knowledge Management*, 12(3), 141-155.

Daft, R. L. (1998) *Organization theory and design*, 6th edition. Cincinnati, Ohio: South-Western Educational Publishing.

Daft, R. L. (2000) *Organization theory and design*, 7th edition. Cincinnati, Ohio: South-Western College Publishing.

Damanpour, F. (1991) Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555-590.

Darroch, J. & McNaughton, R. (2002) Examining the link between knowledge management practices and types of innovation. *Journal of Intellectual Capital*, 3(3), 210-222.

Darroch, J. (2005) Knowledge management, innovation and firm performance. *Journal of Knowledge Management*, 9(3), 101-115.

Daud, S. & Yusoff, W. (2010) Knowledge management and firm performance in SMEs: The role of social capital as a mediating variable. *Asian Academy of Management Journal*, 15(2), 135-155.

Davenport, T. H. & Probst, G. J. (2002) *Knowledge management case book: Siemens best practices.* New York, NY: John Wiley & Sons, Inc.

Davenport, T. H. & Prusak, L. (1997) *Working knowledge*. Boston: Harvard Business School Press.

Davenport, T. H. & Prusak, L. (1998) *Working knowledge: How organizations manage what they know*. Boston: Harvard Business Press.

Davenport, T. H. (1999) Knowledge management and the broader firm: Strategy, advantage, and performance. In Liebowitz, J. (ed) *Knowledge Management Handbook*. Boca Raton: CRC Press.

Davis, D. (1996) *Business research for decision making*. Belmont, CA: Duxbury Press.

de Carvalho, R., Banco de Desenvolvimento de Minas Gerais, B. & Ferreira, M. (2001) Using information technology to support knowledge conversion processes. *Information Research,* 7(1). Available online: *http://InformationR.net/ir/7-1/paper118.html*

De Gilder, D. (2003) Commitment, trust and work behaviour: The case of contingent workers. *Personnel Review*, 32(5), 588-604.

De Vaus, D. A. (2002) *Analysing social science data*. London: Sage Publications Ltd.

De Vaus, D. A. (2014) *Surveys in social research*, 6th edition. Abingdon, Oxon: Routledge.

Dekker D. M., Rutte, C. G. & van den Berg, P. (2015) Isolated team members, perceived proximity and global virtual team effectiveness. *Academy of Management Proceedings: Academy of Management*, 2015(1), 12394- 12394.

DeLong, D. W. (2004) *Lost knowledge: Confronting the threat of an aging workforce*. New York: Oxford University Press.

Demarest, M. (1997) Understanding knowledge management. *Long Range Planning*, 30(3), 374-384.

Denison, D. R. & Mishra, A. K. (1995) Toward a theory of organizational culture and effectiveness. *Organization Science*, 6(2), 204-223.

Denison, D. R., Janovics, J., Young, J. & Cho, H. J. (2006) *Diagnosing organizational cultures: Validating a model and method*. Washington: Denison Consulting Group. Available online: http://astadipangarso.staff.telkomuniversity.ac.id/wp-content/uploads/sites/59/2014/05/denison-2006-validity_0.pdf.

Devlin, K. J. (2001) *Infosense: Turning information into knowledge*. New York, NY: Palgrave MacMillan.

Dickson, P. R. (1996) The static and dynamic mechanics of competition: A comment on Hunt and Morgan's comparative advantage theory. *The Journal of Marketing*, 60(4), 102-106.

Dixon, N. M. (2000) *Common knowledge: How companies thrive by sharing what they know*. Boston: Harvard Business School Press.

Dovey, K. (2009) The role of trust in innovation. *The Learning Organization*, 16(4), 311-325.

Dröge, C., Claycomb, C. & Germain, R. (2003) Does knowledge mediate the effect of context on performance? Some initial evidence. *Decision Sciences*, 34(3), 541-568.

Drucker, P. F. (1993) *Post-capitalist society.* New York: Harper Business.

Drucker, P. F. (2002) *Managing in the next society*. New York: St. Martin's Press.

Drucker, P. F. (2002) The discipline of innovation. *Harvard Business Review*, 80(8), 95-104.

Duffy, J. (1999) *Harvesting experience: Reaping the benefits of knowledge.* Prairie Village, KS: ARMA International.

Duh, R. R., Hsu, A. W. H. & Huang, P. W. (2012) Determinants and performance effect of TQM practices: An integrated model approach. *Total Quality Management & Business Excellence*, 23(5-6), 689-701.

Dzinkowski, R. (2001) *Knowledge Management in financial services: Leveraging intellectual capital to maximise shareholder value*. London: Lafferty.

Earl, M. (2001) Knowledge management strategies: Toward a taxonomy. *Journal of Management Information Systems*, 18(1), 215-233.

Easa, N. (2012) *Knowledge management and the SECI model: A study of innovation in the Egyptian banking sector*. PhD Thesis. The University of Stirling.

Easa, N. F. & Fincham, R. (2012) The application of the socialisation, externalisation, combination and internalisation model in cross-cultural contexts: Theoretical analysis. *Knowledge and Process Management*, 19(2), 03-109.

Easterby-Smith, M. & Lyles, M. (2003) *Organizational learning and knowledge management: Agendas for future research.* Oxford: Blackwell.

Easterby-Smith, M. & Lyles, M. A. eds. (2011) *Handbook of organizational learning and knowledge management.* Oxford, UK: Blackwell Publishing.

Easterby-Smith, M., Snell, R. & Gherardi, S. (1998) Organizational learning: Diverging communities of practice?. *Management Learning*, 29(3), 259-272.

Easterby-Smith, M., Thorpe, R. & Jackson, P. R. (2015) *Management and business research.* London: Sage.

El Emary, I. M., Alyoubi, B. A. & Arif, M. J. (2012) Toward investigating the requirements of knowledge management in the Arab cities: Case study of the Dubai city. *Middle-East Journal of Scientific Research*, 12(3), 357-364.

Elangovan, A. R. & Shapiro, D. L. (1998) Betrayal of trust in organizations. *Academy of Management Review*, 23(3), 547-566.

Eliufoo, H. (2008) Knowledge creation in construction organisations: A case approach. *The learning organization*, 15(4), 309-325.

Elkjaer, B. (1999) In search of a social learning theory. In Easterby-Smith, M. Araujo, L. & Burgoyne, L. (eds) *Organizational learning and the learning organization: Developments in theory and practice*. London: Corwin Press, 75-91.

Eppler, M. J. & Sukowski, O. (2000) Managing team knowledge: Core processes, tools and enabling factors. *European Management Journal*, 18(3), 334-341.

Esterhuizen, D., Schutte, C. S. & Du Toit, A. S. (2012) Knowledge creation processes as critical enablers for innovation. *International Journal of Information Management*, 32(4), 354-364.

Ferlic, K. (2008) *Addressing the practical aspects of accessing the creative spirit for improved organizational performance and/or bringing creativity into an organization or group of individuals*. *Organizational creativity.* Available online: http://organizationalcreativity.info/.

Field, A. (2013) *Discovering statistics using SPSS,* 3nd edition. London: Sage.

Firestone, J. M. & McElroy, M. W. (2003) *Key issues in the new knowledge management*. London, UK: Routledge.

Fleming, L. (2001) Recombinant uncertainty in technological search. *Management Science*, 47(1), 117-132.

Foray, D. & Lundvall, B. (1996) The knowledge-based economy: From the economics of knowledge to the learning economy. *Employment and Growth in the Knowledge-based Economy.* Paris: OECD.

Ford, D. (2001) *Trust and knowledge management: The seeds of success*. Canada: Queen's School of Business, Centre for Knowledge-Based Enterprises. Available online: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.198.8919&rep=rep1&type=pdf .

Fornell, C. & Larcker, D. F. (1981) Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.

Foss, N. J. & Pedersen, T. (2002) Transferring knowledge in MNCs: The role of sources of subsidiary knowledge and organizational context. *Journal of International Management*, 8(1), 49-67.

Frost, A. (2010*) Organisational learning theory from a company-wide perspective. An educational KM site*. Available online: http://www.knowledge-management-tools.net/organizational-learning-theory.html.

Fu, Q. (2004) *Trust, social capital, and organizational effectiveness.* Master of Public and International Affairs. Virginia Polytechnic Institute and State University.

Fuller, S. (2016) *Knowledge management foundations.* New York: Routledge.

Galbraith, C. & Schendel, D. (1983) An empirical analysis of strategy types. *Strategic Management Journal*, 4(2), 153-173.

Gandhi, S. (2004) Knowledge management and reference services. *The Journal of Academic Librarianship,* 30(5) 368-381.

Garcia-Morales, V. J., Llorens-Montes, F. J. & Verdú-Jover, A. J. (2006) Antecedents and consequences of organizational innovation and organizational learning in entrepreneurship. *Industrial Management & Data Systems*, 106(1), 21-42.

Garcia-Morales, V. J., Matias-Reche, F. & Hurtado-Torres, N. (2008) Influence of transformational leadership on organizational innovation and performance depending on the level of organizational learning in the pharmaceutical sector. *Journal of Organizational Change Management,* 21(2), 188-212.

Garson, G. D. (2009) *Logistic regression from statnotes: Topics in multivariate analysis.* Available online: http://faculty.chass.ncsu.edu/garson/pa765/statnote.htm.

Gebert, H., Geib, M., Kolbe, L. & Riempp, G. (2002) Towards customer knowledge management. In *Proceedings of the 2nd International Conference on Electronic Business (ICEB)*. Taipei, 10-13 December 2002. Taipei: Taiwan.

Gerbing, D. W. & Anderson, J. C. (1988) An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research,* 25(2), 186-192.

Gholami, M. H., Asli, M. N., Nazari-Shirkouhi, S. & Noruzy, A. (2013) Investigating the influence of knowledge management practices on organizational performance: An empirical study. *Acta Polytechnica Hungarica*, 10(2), 205-216.

Gianluca, C. & Elisa, O. (2013) Where do firms' recombinant capabilities come from? Intraorganizational networks, knowledge, and firms' ability to innovate through technological recombination. *Strategic Management Journal,* 34(13), 1591-1613.

Gilbert, J. A. & Tang, T. L. (1998) An examination of organizational trust antecedents. *Public Personnel Management*, 27(3), 321-338.

Glisby, M. & Holden, N. (2003) Contextual constraints in knowledge management theory: The cultural embeddedness of Nonaka's knowledge-creating company. *Knowledge & Process Management,* 10(1), 29-36.

Gloldbart, J. & Hustler, D. (2005) Ethnography. In Somekh, B. & Lewin, C. (eds) *Research methods in the social sciences*. London: Sage Publications, 16-23.

Glynn, M. A. (1996) Innovative genius: A framework for relating individual and organizational intelligences to innovation. *Academy of Management Review,* 21(4), 1081-1111.

Gold, A., Malhotra, A. & Segars, A. (2001) Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18(1), 185-214.

Golipour, R., Jandaghi, G., Mirzaei, M. A. & Arbatan, T. R. (2011) The impact of organizational trust on innovativeness at the Tehran oil refinery company. *African Journal of Business Management*, 5(7), 2660-2667.

Goman, C. K. (2004) Five reasons people do not share. *HR Magazine*, 49(5), 377.

Goncalo, J. A. & Staw, B. M. (2005) *Individualism-collectivism and group creativity. Faculty Publications-Organizational Behavior.* New York: Cornell University Press.

Gourlay, S. (2004) Knowing as semiosis: Steps towards a reconceptualization of 'tacit knowledge'. *Organizations as knowledge systems*. London: Palgrave Macmillan UK, 86-105.

Graham, A. B. & Pizzo, V. G. (1996) A question of balance: Case studies in strategic knowledge management. *European Management Journal*, 14(4), 338-346.

Grant, K. & Grant, C. (2008) The knowledge management capabilities of the major Canadian financial institutions. *In The International Conference on Knowledge Management*. Columbus, Ohio: USA. Available online: file://data.adir.hull.ac.uk/home5/504/504279/Desktop/The_Knowledge_Management_Capabilities_of_the_Majo.pdf .

Grant, R. M. (1996) Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17(2), 109-122.

Gray, P. H. (2001) A problem-solving perspective on knowledge management practices. *Decision Support Systems*, 31(1), 87-102.

Gregory, R. J. (2015) *Psychological testing: History, principles, and applications*, 7th edition. Boston: Pearson.

Gujarati, D. & Porter, D., (2010) *Econometría*. México: McGraw-Hill.

Gujarati, D. (2002) *Basic econometrics*, 4th edition. New York: McGraw Hill.

Gupta, J. N. & Sharma, S. K. (2004) *Creating knowledge based organizations*. Boston: Idea Group Publishing.

Gurteen, D. (1998) Knowledge, creativity and innovation. *Journal of Knowledge Management*, 2(1), 5-13.

Gururajan, R. & Hafeez-Baig, A. (2012) Critical role of 'T-shaped skills and incentive rewards' as determinants for knowledge management enablers: A case of Indian study. In Kalloniatis, C. (ed) *Modern information systems.* Rijeka, Croatia: InTech, 133-146.

Guthrie, J. P. (2001) High-involvement work practices, turnover, and productivity: Evidence from New Zealand. *Academy of Management Journal*, 44(1), 180-190.

Guzman, G. A. & Wilson, J. (2005) The “soft” dimension of organizational knowledge transfer. *Journal of Knowledge Management*, 9(2), 59-74.

Gyensare, M. A. & Asare, J. A. (2012) Enhancing innovation and productivity through knowledge management: The case of unique trust bank in Ghana. *Journal of Knowledge Management Practice*, 13(1), 1-14.

Haag, M., Duan, Y. & Mathews, B. (2010) The impact of culture on the application of the SECI model. In Harorimana, D. (ed) *Cultural implications of knowledge sharing, management and transfer: Identifying competitive advantage.* Hershey, PA: Information Science Reference, 26-47.

Haggie, K. & Kingston, J. (2003) Choosing your knowledge management strategy. *Journal of Knowledge Management Practice*, 4(4), 1-20.

Hair, J. F., Black, W. C. & Babin, B. J. (2006) *Multivariate Data Analysis,* 6th edition. New Jersey: Pearson Education, Inc.

Hair, J. F., Black, W. C. & Babin, B. J. (2010) *Multivariate Data Analysis,* 7th edition. New Jersey: Pearson Education, Inc.

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2010) *Multivariate Data Analysis: A global Perspective,* 7th edition. New Jersey: Pearson Education, Inc.

Handzic, M. & Chaimungkalanont, M. (2004) Enhancing organizational creativity through socialization. *Electronic Journal of Knowledge Management*, 2(1), 57-64.

Hannah, S. T. & Lester, P. B. (2009) A multilevel approach to building and leading learning organizations. *The Leadership Quarterly*, 20(1), 34-48.

Hansen, M. T., Nohria, N. & Tierney, T. (1999) What‘s your strategy for managing knowledge?. *Harvard Business Review*, 77(2), 106-116.

Harman, H. H. (1960) *Modern factor analysis*. Chicago, IL: University of Chicago Press.

Haslinda, A. & Sarinah, A. (2009) A review of knowledge management models. *Journal of International Social Research*, 2(9), 187-198.

Hay, C. (2002) *Political analysis.* Basingstoke: Palgrave.

Hedlund, G. (1994) A model of knowledge management and the N-form corporation. *Strategic Management Journal*, 15(S2), 73-90.

Herschel, R.T., Nemati, H. & Steiger, D. (2001) Tacit to explicit knowledge conversion: Knowledge exchange protocols. *Journal of Knowledge Management*, 5(1), 107-116.

Hicks, R. C., Dattero, R. & Galup, S. D. (2007) A metaphor for knowledge management: Explicit islands in a tacit sea. *Journal of Knowledge Management*, 11(1), 5-16.

Hlupic, V., Pouloudi, A. & Rzevski, G. (2002) Towards an integrated approach to knowledge management:'hard','soft'and 'abstract'issues. *Knowledge and Process Management*, 9(2), 90-102.

Ho, C. T. (2009) The relationship between knowledge management enablers and performance. *Industrial Management & Data Systems*, 109(1), 98-117.

Hofer, C. W. (1983) ROVA: A new measure for assessing organizational performance. *Advances in Strategic Management*, 2, 43-55.

Hofstede, G. (1991) Measuring organizational cultures: A qualitative and quantitative study across 20 cases. *Administrative Science Quarterly*, 35(2), 286-316.

Hofstede, G., Hofstede, G. & Minkov, M. (2010) *Cultures and organizations: Software of the mind*, 3rd edition. New York: McGraw-Hill.

Holden, M. T. & Lynch, P. (2004) Choosing the appropriate methodology: Understanding research philosophy. *The Marketing Review*, 4(4), 397-409.

Holland, J. (2010) Banks, knowledge and crisis: A case of knowledge and learning failure. *Journal of Financial Regulation and Compliance*, 18(2), 87-105.

Holsapple, C. W. & Joshi K. D. (2000) An investigation of factors that influence the management of knowledge in organizations. *Journal of Strategic Information Systems*, 9(2), 235-261.

Holsapple, C. W. & Joshi, K. D. (2001) Organizational knowledge resources. *Decision Support Systems*, 31(1), 39-54.

Holsapple, C. W. & Joshi, K. D. (2002) Knowledge manipulation activities: Results of a Delphi study. *Information & Management*, 39(6), 477-490.

Holsapple, C. W. & Singh, M. (2001) The knowledge chain model: Activities for competitiveness. *Expert Systems with Applications*, 20(1), 77-98.

House, E. R. (1991) Realism in research. *Educational Researcher*, 20(6), 2-9.

Hoyle, R. H. ed. (1995) *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks, CA: Sage Publications, 1-15.

HRSA (2011) *Management data for performance improvement: U. S. department of health and human services.* Available online: http://www.hrsa.gov/quality/toolbox/508pdfs/performancemanagementandmeasurement.pdf.

Hsieh, J. (2007) *Organizational characteristics, knowledge management strategy, enablers, and process capability: Knowledge management performance in US software companies*. PhD thesis. Lynn University.

Hu, L. T. & Bentler, P. M. (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55.

Hubbard, G. (2009) Measuring organizational performance: Beyond the triple bottom line. *Business Strategy and the Environment*, 18(3), 177-191.

Huber, G. P. (1991) Organizational learning: The contributing processes and the literatures. *Organization Science*, 2(1), 88-115.

Hudson, L. A. & Ozanne, J. L. (1988) Alternative ways of seeking knowledge in consumer research. *Journal of Consumer Research*, 14(4), 508-521.

Hughes, J. (1994) *The philosophy of social research*. Essex: Longman Press.

Hunt, S. D. & Morgan, R. M. (1996) The resource-advantage theory of competition: Dynamics, path dependencies, and evolutionary dimensions. *The Journal of Marketing*, 60(4), 107-114.

Hunt, S. D. (1995) The resource-advantage theory of competition toward explaining productivity and economic growth. *Journal of Management Inquiry*, 4(4), 317-332.

Hunter, J. E. & Gerbing D. W. (1982) Unidimensional measurement, second order factor analysis, and causal models. *Research in Organization Behavior*, 4(1), 267-320.

Hurley, R. F. & Hult, G. T. M. (1998) Innovation, market orientation, and organizational learning: An integration and empirical examination. *The Journal of Marketing*, 62(3), 42-54.

Hutchings, K. & Michailova, S. (2004) Facilitating knowledge sharing in Russian and Chinese subsidiaries: The role of personal networks and group membership. *Journal of Knowledge Management*, 8(2), 84-94.

Iansiti, M. (1993) Real-world R&D: Jumping the product generation gap. *Harvard Business Review*, 71(3), 138-147.

Ibarra, H., & Hunter, M. (2007a) How leaders create and use networks. *Harvard Business Review*, 85(1), 40-47.

Ichijo, K. (2006) *Knowledge creation and management: New challenges for managers.* Oxford: Oxford University Press.

Ichijo, K., Krogh, G. & Nonaka, I. (1998) Knowledge enablers. In Krogh, G., Roos, J. & Kleine, D. (eds) *Knowing in firms: Understanding, managing and measuring knowledge*. Thousand Oaks, California: Sage Publications, 173- 203.

Ingham, M. (1994) L'apprentissage organisationnel dans les coope´rations. *Revue Franc¸aise de Gestion*, 97(1), 105-21.

Ipe, M. (2003) Knowledge sharing in organizations: A conceptual framework. *Human Resource Development Review*, 2(4), .337-359.

Islam, Z. M., Hasan, I., Ahmed, S. U. & Ahmed, S. M. (2011) Organizational culture and knowledge sharing: Empirical evidence from service organizations. *African Journal of Business Management,* 5(14), 5900-5909.

Issam, D. & Al-Makhadmah, M. (2015) The influence of knowledge management on organizational performance in service organizations in Jordan. *Information and Knowledge Management*, 5(12), 42-46.

Jaccard, J. & Becker, M. A. (1997) *Statistics for the Behavioral Sciences*, 3rd edition. Pacific Grove, CA, USA: Brooks/Cole Pub. Co.

Jafari, M., Akhavan, P. & Ashraf, M. (2009) A review on knowledge management discipline. *Journal of Knowledge Management Practice*, 10(1), 1-23.

Janz, B. D. & Prasarnphanich, P. (2003) Understanding the antecedents of effective knowledge management: The importance of a knowledge-centered culture. *Decision Sciences,* 34(2), 351-384.

Jarvenpaa, S. L., Tractinsky, N. & Saarinen, L. (2000) Consumer trust in an internet store. *Information Technology and Management*, 5(2), 1-45.

Jeng, D. J. F. & Dunk, N. (2013) Knowledge management enablers and knowledge creation in ERP system success. *International Journal of Electronic Business Management,* 11(1), 49-55.

Johannessen, J. A., Olsen, B. & Olaisen, J. (1999) Aspects of innovation theory based on knowledge-management. *International Journal of Information Management*, 19(2), 121-139.

Johnson, B. & Christensen, L. (2017) *Educational research: Quantitative, qualitative, and mixed approaches*. Thousand Oaks, California: SAGE Publications.

Joo, B. K. (2007) *The impact of contextual and personal characteristics on employee creativity in Korean firms.* PhD thesis. University of Minnesota.

Jöreskog, K. & Sörbom, D. (1993) *LISREL 8: Structural equation modeling with the SIMPLIS command language*, 2nd edition. Chicago, IL: Scientific Software International.

Jöreskog, K. G., Sörbom, D. & Du Toit, S.H.C. (2001) *LISREL 8: New statistical features*. Lincolnwood, IL: Scientific Software International.

Jöreskog, K. & Sorbom, D. (1993) *LISREL User's reference guide*. Chicago, IL: Scientific Software.

Kakihara, M. & Sørensen, C. (2002) Exploring knowledge emergence: From chaos to organizational knowledge. *Journal of Global Information Technology Management*, 5(3), 48-66.

Kalling, T. (2003) Organization-internal transfer of knowledge and the role of motivation: A qualitative case study. *Knowledge and Process Management*, 10(2), 115-126.

Kandula, S. R. (2006) *Performance management.* New Delhi: Prentice Hall of India private limited.

Kanevsky, V. & Housel, T. J. (1998) The Learning-Knowledge-Value Cycle. In Von Krogh, G. Roos, J. & Kleine, D. (eds) *Knowing in firms: Understanding, managing, and measuring knowledge.* London: Sage, 269-285.

Kankanhalli, A., Tan, B. C. & Wei, K. K. (2005) Contributing knowledge to electronic knowledge repositories: An empirical investigation. *MIS Quarterly*, 29(1), 113-143.

Kao, S. C., Wu, C. & Su, P. C. (2011) Which mode is better for knowledge creation?. *Management Decision*, 49(7), 1037-1060.

Kaplan, B. & Duchon, D. (1988) Combining qualitative and quantitative methods in information systems research: A case study. *MIS Quarterly*, 12(4), 571-586.

Kaplan, R. S. & D. P. Norton (2000) Having trouble with your strategy? then map it. *Harvard Business Review*, 78(5), 167-276.

Karimi, F. & Javanmard, M. (2014) Surveying the infrastructure and capabilities for knowledge management implementation in supply chain. *JIM QUEST*, 10(1), 75-82.

Kasten, J. (2006) *Knowledge strategy drivers: An exploratory study.* Unpublished PhD thesis. Long Island University, New York.

Kefela, G. T. (2010) Knowledge-based economy and society has become a vital commodity to countries. *International NGO Journal*, 5(7), 160-166.

Kimaiyo, I. K., Kapkiyai, C. & Sang, J. C. (2015) Effect of knowledge management on firm performance in commercial banks in Nakuru, Eldoret and Kisumu. *European Journal of Business and Management*, 7(3), 207-216.

King, K. & McGrath, S. A. (2004) *Knowledge for development?: Comparing British, Japanese, Swedish and World Bank aid.* London: Zed Books.

King, W. R. (2009) *Knowledge management and organizational learning*. New York, NY: Springer, 3-13.

Kline, R. B. (2005) *Principles and practice of structural equation modeling,* 2nd edition. New York: Guilford Press.

Kline, R. B. (2011) *Principles and practice of structural equation modeling,* 3rd edition. New York: Guilford Press.

Kogut, B. & Zander, U. (1996) What firms do? Coordination, identity, and learning. *Organization Science*. 7(5), 502-518.

Koh, A. T. (2000) Linking learning, knowledge creation, and business creativity: A preliminary assessment of the East Asian quest for creativity. *Technological Forecasting and Social Change*, 64(1), 85-100.

Kopp, G. (2003) *Six sigma in financial services: customer focus and institutional performance.* Available online: http://www.banktech.com/management-strategies/six-sigma-in-financial-services-customer-focus-and-institutional-performance/d/d-id/1289194.

Krejcie, R. V. & Morgan, D. W. (1970) Determining sample size for research activities. *Educational and Psychological Measurement,* 30(3), 607-610.

Kridan, A. & Goulding, J. (2006) A case study on knowledge management implementation in the banking sector. *Vine*, 36(2), 211-222.

Kubo, I., Saka, A. & Pan, S. L. (2001) Behind the scenes of knowledge sharing in a Japanese bank. *Human Resource Development International*, 4(4), 465-485.

Lai, X., Li, F. & Leung, K. (2013) A monte carlo study of the effects of common method variance on significance testing and parameters bias in hierarchical linear modeling. *Organizational Research Methods*, 16(2), 243-269.

Lamb, E. C. (2001) Knowledge management: How to mine the information treasures inside your bank. A tale of measuring and managing the potential within. *Community Banker*, 10(9), 24-6.

Lebans, M. & Euske, K. (2006) *A conceptual and operational delineation of performance. In: Business performance measurement.* Cambridge: Cambridge University Press.

Lee, H. & Choi, B. (2000) Knowledge management enablers, processes, and organisational performance: An integration and empirical examination. Available online: http://gebrc.nccu.edu.tw/proceedings/APDSI/2000/list/pdf/P-077.pdf.

Lee, H. & Choi, B. (2003) Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. *Journal of Management Information Systems*, 20(1), 179-228.

Lee, L. T. & Sukoco, B. M. (2007) The effects of entrepreneurial orientation and knowledge management capability on organizational effectiveness in Taiwan: The moderating role of social capital. *International Journal of Management*, 24(3), 549-572.

Lee, M. R., & Lan, Y. C. (2011) Toward a unified knowledge management model for SMEs. *Expert Systems with Applications*, 38(1), 729-735.

Leonard, D. & Sensiper, S. (1998) The role of tacit knowledge in group innovation. *California Management Review*, 40(3), 112-132.

Leonard, D. & Straus, S. (1997) Putting your company's whole brain to work. *Harvard Business Review*, 75(4), 110-122.

Leonard-Barton, D. (1995) *Wellsprings of knowledge: Building and sustaining the sources of innovation*. Boston: Harvard Business School Press.

Lev, B. (1999) R&D and capital markets. *Journal of Applied Corporate Finance*, 11(4), 21-35.

Levey, S. (1997) Coincidence and principles of composition. *Analysis*, 57(1), 1-10.

Levinthal, D. A. & March, J. G. (1993) The myopia of learning. *Strategic Management Journal*, 14(2), 95-112.

Li, R. Y. M. & Zhang, P. (2010) Motivation to share hospital building design knowledge by information technology in Hong Kong. *Lex ET Scientia Economics Series*, 17(1), 358-368.

Li, Y. H., Huang, J. W. & Tsai, M. T. (2009) Entrepreneurial orientation and firm performance: The role of knowledge creation process. *Industrial Marketing Management*, 38(4), 440-449.

Liebowitz, J. (1999) *Knowledge management handbook*. Boca Raton, FL: CRC press.

Lin, H. F. & Lee, G. G. (2004) Perceptions of senior managers toward knowledge-sharing behaviour. *Management Decision*, 42(1), 108-125.

Lindell, M. K. & Whitney, D. J. (2001) Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86(1), 114-121.

Linderman, K. M., Schroeder, R. G., Zaheer, S., Liedtke, C. & Choo, A. S. (2004) Integrating quality management practices with knowledge creation processes. *Journal of Operations Management*, 22(6), 589-607.

Linderman, K., Schroeder, R. G. & Sanders, J. (2010) A knowledge framework underlying process management. *Decision Sciences*, 41(4), 689-719.

Ling, C. T. N. (2011) Culture and trust in fostering knowledge-sharing. *Electronic Journal of Knowledge Management*, 9(4), 328-339.

Liu, S., & Deng, Z. (2015) Understanding knowledge management capability in business process outsourcing. *Management Decision*, 53(1), 124 -138.

Long, D. D. (1997) *Building the knowledge-based organizations: How culture drives knowledge behaviors. Working paper, Center for Business Innovation.* Cambridge, MA: Ernst & Young LLP.

López, S. P., Peón, J. M. M. & Ordás, C. J. V. (2004) Managing knowledge: The link between culture and organizational learning. *Journal of Knowledge Management*, 8(6), 93 – 104.

Lopez-Saez, P. José, E.N., Martín-de-Castro, G. & Cruz-González, J. (2010) External knowledge acquisition processes in knowledge-intensive clusters. *Journal of Knowledge Management*, 14(5), 690-707.

Louis, M. R. (1980) Surprise and sense making: What newcomers experience in entering unfamiliar organizational settings. *Administrative Science Quarterly*, 226-251.

MacCallum, R. C. (1990) The need for alternative measures of fit in covariance structure modeling. *Multivariate Behavioral Research*, 25(2), 157-162.

Madhavan, R. & Grover, R. (1998) From embedded knowledge to embodied knowledge: New product development as knowledge management. *The Journal of Marketing*, 62(4), 1-12.

Magee, K. C. (2002) *The impact of organizational culture on the implementation of performance management*. PhD Thesis. Georgia State University.

Magnier-Watanabe, R., Benton, C. & Senoo, D. (2011) A study of knowledge management enablers across countries. *Knowledge Management Research & Practice*, 9(1), 17-28.

Maier, R. & Remus, U. (2003) Implementing process-oriented knowledge management strategies. *Journal of Knowledge Management*, 7(4), 62-74.

Malina, M. A. & Selto, F. H. (2004) Choice and change of measures in performance measurement models. *Management Accounting Research*, 15(4), 441-469.

Markatou, M. (2011) Innovation and knowledge creation in Greece: An analysis based on patent data. *Journal of Innovation and Business Best Practice*, 2011(2011), 1-10.

Marsick, V. J. & Watkins, K. E. (1999) *Facilitating learning organizations: Making learning count*. Aldershot: Gower Publishing Limited.

Martin-de-Castro, G., López-Sáez, P. & Navas-López, J. E. (2007) *Knowledge creation processes: Theory and empirical evidence from knowledge intensive firms*. New York: Palgrave Macmillan.

Martin-de-Castro, G., López-Sáez, P. & Navas-López, J. E. (2008) Processes of knowledge creation in knowledge-intensive firms: Empirical evidence from Boston's Route 128 and Spain. *Technovation*, 28(4), 222-230.

Martins, E. C. & Terblanche, F. (2003) Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, 6(1), 64-74.

Mathi, K. (2004) *Key success factors for knowledge management.* MBA thesis. Kempten University of Applied Sciences.

Matthews, J. H. (2003) Knowledge management and organizational learning: Strategies and practices for innovation. *5th International Conference*. Lancaster University, 30 May –2 June, 2003, 1-12.

Mayer, R. C., Davis, J. H. & Schoorman, F. D. (1995) An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709-734.

Maylor, H. & Blackmon, K. (2005) *Researching business and management: A roadmap for success*. United Kingdom: Palgrave Macmillan.

McDonald, R. P. & Marsh, H. W. (1990) Choosing a multivariate model: Noncentrality and goodness of fit. *Psychological Bulletin*, 107(2), 247.

McKnight, D. H., Cummings, L. L. & Chervany, N. L. (1998) Initial trust formation in new organizational relationships. *Academy of Management Review*, 23(3), 473-490.

Meyerson, D. & Martin, J. (1987) Cultural change: An integration of three different views. *Journal of Management Studies*, 24(6), 623-647.

Mikic, S., White, G. & Razak, A. A. (2009) A knowledge review: Implications for future research and practical application. *International Journal of Business and Management*, 4(1), 26-31.

Miles, I. (2011) From knowledge-intensive services to knowledge-intensive service systems. *International Journal of Services Technology and Management*, 16(2), 141-159.

Miles, J. (2001) *Research methods & statistics*. London: Stage.

Mills, A. M. & Smith, T. A. (2011) Knowledge management and organizational performance: A decomposed view. *Journal of Knowledge Management*, 15(1), 156-171.

Ministry of Economy and Planning (2005) *Brief Report of the Eighth Development Plan (2005-2009).* Kingdom of Saudi Arabia: Ministry of Economy and Planning.

Ministry of Economy and Planning (2010) *Brief Report of the Ninth Development Plan (2010-2014).* Kingdom of Saudi Arabia: Ministry of Economy and Planning.

Mirghafori, H., Farhang Nejad, M. A. & Sadeghi Arani, Z. (2010) Assessment the function of health services in Yasd province in application of knowledge management process. *Journal of Health Administration,* 13(39), 79-88.

Mizintseva, M. F. & Gerbina, T. V. (2009) Knowledge management practice: Application in commercial banks (a Review). *Scientific and Technical Information Processing,* 36(6), 309-318.

Moffett, S., McAdam, R. & Parkinson, S. (2003) An empirical analysis of knowledge management applications. *Journal of Knowledge Management,* 7(3), 6-26.

Morgeson, F. P., Dierdorff, E. C. & Hmurovic, J. L. (2010) Work design in situ: Understanding the role of occupational and organizational context. *Journal of Organizational Behavior,* 31(2-3), 351-360.

Mueller, J. (2012) The interactive relationship of corporate culture and knowledge management: A review. *Review of Managerial Science,* 6(2), 183-201.

Murphy, G. B., Trailer, J. W. & Hill, R. C. (1996) Measuring performance in entrepreneurship research. *Journal of Business Research,* 36(1), 15-23.

Murphy, K. R., & Cleveland, J. N. (1995) *Understanding performance appraisal: Social organizational and goal based perspectives.* Thousand Oaks: Sage Publications.

Nachmias, C. F. & Nachmias, D. (2007) *Research methods in the social sciences study guide*. New York: Worth Publishers.

Naranjo-Valencia, J. C., Jiménez-Jiménez, D. & Sanz-Valle, R. (2016) Studying the links between organizational culture, innovation, and performance in Spanish companies. *Revista Latinoamericana de Psicología,* 48(1), 30-41.

Naserieh, M. Y., Pourkiani, M., Ziaadini, M. & Fahim, I. (2012) Value study of a proper pattern for promotion of knowledge management. *International Journal of Acedemic Research in Business and Social Science,* 2(12), 267-287.

Ndlela, L. T. & Du Toit, A. S. A. (2001) Establishing a knowledge management programme for competitive advantage in an enterprise. *International Journal of Information Managemen*t, 21(2), 151-165.

Nejatian, M., Nejati, M., Zarei, M. H. & Soltani, S. (2013) Critical enablers for knowledge creation process: Synthesizing the literature. *Global Business and Management Research*, 5(2/3), 105-119.

Nematizade, S. & Branch, E. (2012) Assessment of the underlying factors for implementation of knowledge management in tejarat bank. *Interdisciplinary Journal of Contemporary Research in Business*, 4(6), 1027–1034.

Neuman, L. W. (2014) *Social research methods: Qualitative and quantitative approaches.* Edinburgh Gate, Harlow: Pearson Education Limited.

Nevis, E., DiBella, A. & Gould, J. (1995) Understanding organizations as learning systems. *Sloan Management Review*, 36(2), 73-85.

Ng, P. & Jee, K. (2013) Knowledge creation and its effects on NPD: A survey of malaysian manufacturing firms. *Journal of Knowledge Management Practice*, 14(3), 1-10.

Ng, P., Goh, G. & Eze, U. (2011) The role of knowledge management in product development performance: A review. *Journal of Knowledge Management Practice*, 12(1). Available online: http://www.tlainc.com/articl255.htm

Ngah, R., Hoo, C. H. & Ibrahim, A. R. (2009) The relationship between knowledge management and trust: Malaysian perspective. *International Journal of Management Innovation Systems*, 1(1), 113-117.

Nieminen, H. (2007) *Developing competences through inter-organisational knowledge acquisition.* PhD Thesis. University in Turku.

Nikbakht, A., Siadat, S., Hoveida, R. & Moghad-dam, A. (2010) The relation between knowledge management and managers' leadership styles in training groups in the view of Isfahan Medical University faculties. *Health Information Management Journal*, 7(2), 224.

Nisula, A. M. (2013) *Building organizational creativity–a multitheory and multilevel approach for understanding and stimulating organizational creativity*. PhD Thesis. Lappeenranta University of Technology.

Noh, M., Kim, H. & Jang, H. (2014) Learning performance and business performance of knowledge management organizations: The moderating effect of technology capability. *Information Development*, 30(5), 1–18.

Nold III, H. A. (2012) Linking knowledge processes with firm performance: Organizational culture. *Journal of Intellectual Capital*, 13(1), 16-38.

Nonaka, I. & Konno, N. (1998) The concept of" ba": Building a foundation for knowledge creation. *California Management Review*, 40(3), 40-54.

Nonaka, I. & Konno, N. (2005) The concept of "ba": Building a foundation for knowledge creation. *Knowledge management: Critical perspectives on business and management*, 2(3), 53.

Nonaka, I. & Takeuchi, H. (1995) *The knowledge-creating company: How Japanese companies create the dynamics of innovation.* Oxford: Oxford University Press.

Nonaka, I. & Toyama, R. (2003) The knowledge-creating theory revisited: Knowledge creation as a synthesizing process. *Knowledge Management Research & Practice*, 1(1), 2-10.

Nonaka, I. (1991) The knowledge-creating company. *Harvard Business Review*, 69(6), 96-105.

Nonaka, I. (1994) A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14-37.

Nonaka, I., Byosiere, P., Borucki, C.C. & Konno, N. (1994) Organizational knowledge creation theory: A first comprehensive test. *International Business Review*, 3(4), 337-351.

Nonaka, I., Toyama, R. & Konno, N. (2000) SECI, Ba and leadership: A unified model of dynamic knowledge creation. *Long Range Planning*, 33(1), 5-34.

Nonaka, I., Toyama, R. & Nagata, A. (2000) A firm as a knowledge-creating entity: A new perspective on the theory of the firm. *Industrial and Corporate Change*, 9(1), 1-20.

Nonaka, I., Von Krogh, G. & Voelpel, S. (2006) Organizational knowledge creation theory: Evolutionary paths and future advances. *Organization Studies*, 27(8), 1179-1208.

Nunnally, J. C. & Bernstein, I. H. (1994) *Psychometric Theory*, 3rd edition. New York: McGraw-Hill.

Nunnally, J.C. (1978) *Psychometric theory*, 2nd edition. New York: Mc Graw-Hill Publ Co.

Ogbonna, E. & Harris, L. C. (2000) Leadership style, organizational culture and performance: Empirical evidence from UK companies. *International Journal of Human Resource Management*, 11(4), 766-788.

O'Leary, M. B., Wilson, J. M. & Metiu, A. (2014) Beyond being there: The symbolic role of communication and identification in perceptions of proximity to geographically dispersed colleagues. *MIS Quarterly*, 38(4), 1219-1243.

Oltra, V. (2005) Knowledge management effectiveness factors: The role of HRM. *Journal of Knowledge Management*, 9(4), 70-86.

OuYang, Y. C. (2014) A cyclic model for knowledge management capability - A review study. *Arabian Journal of Business and Management Review*, 4(4), 1-9.

Ozbilgin, M. F. & Syed, J. (2010) *Managing gender diversity in Asia: A research companion*. Glos, UK: Edward Elgar Publishing Limited.

Pallant, J. (2016) *SPSS survival manual (UK higher education OUP psychology).* Berkshire, UK: McGraw Hill.

Pandey, S. & Sharma, R. R. K. (2009) Organizational factors for exploration and exploitation. *Journal of Technology Management & Innovation*, 4(1), 48-58.

Parjanen, S. (2012) Experiencing creativity in the organization: From individual creativity to collective creativity. *Interdisciplinary Journal of Information, Knowledge, and Management*, 7(1), 109-128.

Peterson, R. A. (1994) A meta-analysis of Cronbach's coefficient alpha. *Journal of Consumer Research*, 21(2), 381-391.

Petty, R. & Guthrie, J. (2000) Intellectual capital literature review: Measurement, reporting and management. *Journal of Intellectual Capital*, 1(2), 155-176.

Pham, T. (2008) *Intra-organizational knowledge transfer process in vietnam's information technology companies*. PhD Thesis. University of Fribourg, Switzerland.

Pinar, T., Zehir, C., Kitapçi, H. & Tanriverdi, H. (2014) The relationships between leadership behaviors team learning and performance among the virtual teams. *International Business Research*, 7(5), 68-79.

Ping, L. & Kebao, W. (2010) Knowledge management in banks. *The International Conference on E-Business and E-Government (ICEE).* Guangzhou, China, 7-9 May 2010, 1819-1822.

Pinjani, P. & Palvia, P. (2013) Trust and knowledge sharing in diverse global virtual teams. *Information & Management*, 50(4), 144-153.

Pirkkalainen, H. & Pawlowski, J. (2013) Global social knowledge management: From barriers to the selection of social tools. *Electronic Journal of Knowledge Management*, 11(1), 3-17.

Plane, D. R. & Oppermann, E. B. (1977) *Statistics for management decisions*. Dallas, TX: Business Publications.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y. & Podsakoff, N. P. (2003) Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903.

Polanyi, M. (1966) *The tacit dimension.* Doubleday: Garden City, NY.

Politis, J. D. (2002) Transformational and transactional leadership enabling (disabling) knowledge acquisition of self-managed teams: The consequences for performance. *Leadership & Organization Development Journal*, 23(4), 186-197.

Politis, J. D. (2003) The connection between trust and knowledge management: What are its implications for team performance. *Journal of Knowledge Management*, 7(5), 55-66.

Popadiuk, S. & Choo, C. W. (2006) Innovation and knowledge creation: How are these concepts related?. *International Journal of Information Management*, 26(4), 302-312.

Poufelt, F. & Peretsen, N. (2016) *6 principles of knowledge sharing. Master of knowledge management.* Available online: http://www.providersedge.com/docs/km_articles/6_Principles_of_K-Sharing.pdf.

Punch, K. F. (2003) *Survey research the basics*. London: Sage Publication Ltd.

Quinn, J. B., Anderson, P. & Finkelstein, S. (1996) Leveraging intellect. *The Academy of Management Executive*, 10(3), 7-27.

Quinn, J. B., Anderson, P. & Finkelstein, S. (1996) Managing professional intellect: Making the most of the best. *Harvard Business Review*, 74(2), 71-80.

Raelin, J. A. (1997) A model of work-based learning. *Organization Science*, 8(6), 563-578.

Refaey, M. (2002) Knowledge management: Evaluating the role of socialization, externalization, internalization and combination processes and its effect on the 306 innovation process - An empirical study on the pharmaceutical sector in Egypt. *Commercial Studies & Researches Journal*. Faculty of Commerce-Banha (Egypt), 1(1), 30-53.

Rahimi, H., Arbabisarjou, A., Allameh, S. M. & Aghababaei, R. (2011) Relationship between knowledge management process and creativity among faculty members in the university. *Interdisciplinary Journal of Information, Knowledge, and Management*, *6*, 17-33.

Rai, R. K. (2011) Knowledge management and organizational culture: A theoretical integrative framework. *Journal of Knowledge Management,* 15(5), 779-801.

Ramalingam, B. (2005) *Implementing knowledge strategies: Lessons from international development agencies.* London: Overseas development institute.

Ramirez, A. M. & Kumpikaite, V. (2012) Creation, transfer and application of knowledge and its importance for business innovation and organizational performance. *International Proceedings of Economics Development & Research*, 46(6), 27-31.

Ratković-Njegovan, B. & Kostić, B. (2014) Impact of organizational socialization towards employees' social adaptation. *Journal of Engineering Management and Competitiveness (JEMC)*, 4(1), 34-40.

Ratnasingham, P. & Kumar, K. (2000) Trading partner trust in electronic commerce participation. *In Proceedings of International Conference of Information Systems.* Brisbane, Australia, 10-13 December 2000, 544-552.

Ray, G., Barney, J. B. & Muhanna, W. A. (2004) Capabilities, business processes, and competitive advantage: Choosing the dependent variable in empirical tests of the resource-based view. *Strategic Management Journal*, 25(1), 23-37.

Reichers, A. E. (1987) An interactionist perspective on newcomer socialization rates. *Academy of Management Review*, 12(2), 278-287.

Reisi, M., Hoseini, S. E., Talebpour, M. & Nazari, V. (2013) Regression equation fitted to knowledge management and organizational effectiveness in the selected sport organizations of Iran. *African Journal of Business Management*, 7(39), 4159-4167.

Rezaiian, S. & Ghazinouri, S. S. (2010) Finding a model for the role of ethics in the success of knowledge management systems. *Science and Technology Policy Quarterly*, 3(2), 1-9.

Ribiere, V. & Chou, C. (2001) Knowledge management in the banking industry. *Proceedings of the Second European Conference on Knowledge Management, IEDC-Bled School of Management.* Bled, Slovenia, 8 – 9 November 2001, 1-21.

Ribiere, V. M. & Tuggle, F. D. (2005) The role of organizational trust in knowledge management: Tool & technology use & success. *International Journal of Knowledge Management (IJKM)*, 1(1), 67-85.

Ricardo, R. & Wade, D. (2001) *Corporate performance management: How to build a better organization through measurement driven strategies alignment.* Boston: Butterworth Heinemann.

Rice, J. L. & Rice, B. S. (2005) The applicability of the SECI model to multi-organisational endeavours: An integrative review. *International Journal of Organisational Behaviour*, 9(8), 671-682.

Richard, P. J. Devinney, T. M., Yip, G. S. & Johnson, G. (2009) Measuring organizational performance: Towards methodological best practice. *Journal of Management*, 35(3), 718-804.

Richtner, A. & Ahlström, P. (2010) Top management control and knowledge creation in new product development. *International Journal of Operations & Production Management*, 30(10), 1006-1031.

Robinson, R. B. (1982) The importance of “outsiders” in small firm strategic planning. *Academy of Management Journal*, 25(1), 80-93.

Rodrigues, L., Gayathri, R. & Rao, S. (2006) Empirical study based evaluation of KM models in the IT sectors: Implications for quality outcomes. *Journal of Knowledge Management Practice*, 7(3). Available online: http://www.tlainc.com/articl116.htm.

Rotter, J. B. (1967) A new scale for the measurement of interpersonal trust1. *Journal of Personality*, 35(4), 651-665.

Rousseau, D. M., Sitkin, S. B., Burt, R. S. & Camerer, C. (1998) Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3), 393-404.

Rubio, D., Berg-Weger, M. & Tebb, S. (2001). Using structural equation modelling to test for multidimensionality. *Structural Equation Modelling*, 8(4), 613-626.

Ruggles, R. (1998) The state of the notion: Knowledge management in practice. *California Management Review*, 40(3), 80-89.

Ryan, S. D. & Prybutok, V. R. (2001) Factors affecting the adoption of knowledge management technologies: A discriminative approach. *Journal of Computer Information Systems*, 41(4), 31-37.

Saarenketo, S., Puumalainen, K., Kuivalainen, O. & Kyläheiko, K. (2004) Dynamic knowledge-related learning processes in internationalizing high-tech SMEs. *International Journal of Production Economics*, 89(3), 363-378.

Saaty, T. L., Vargas, L. G. & Dellmann, K. (2003) The allocation of intangible resources: The analytic hierarchy process and linear programming. *Socio-Economic Planning Sciences*, 37(3), 169-184.

Sahdra, B. & Thagard, P. (2003) Procedural knowledge in molecular biology. *Philosophical psychology*, 16(4), 477-498.

Salamon, S. D. & Robinson, S. L. (2008) Trust that binds: The impact of collective felt trust on organizational performance. *Journal of Applied Psychology*, 93(3), 593-601.

Sale, J. E., Lohfeld, L. H. & Brazil, K. (2002) Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and Quantity*, 36(1), 43-53.

Salmador, M. P. & Bueno, E. (2007) Knowledge creation in strategy-making: Implications for theory and practice. *European Journal of Innovation Management*, 10(3), 367-390.

Salvucci, S., Walter, E., Conley, V., Fink, S. & Saba, M. (1997) *Measurement error studies at the national center for education statistics.* Washington DC: US Department of Education.

Sanchez, R. (2003) *Knowledge management and organizational competence.* London: Oxford University Press.

Sankowska, A. (2013) Relationships between organizational trust, knowledge transfer, knowledge creation and firm's innovativeness. *Learning Organization*, 20(1), 85-100.

Santos, J. R. A. (1999) Cronbach's alpha: A tool for assessing the reliability of scales. *Journal of Extension*, 37(2), 24-43.

Sarantakos, S. (2012) *Social research.* New York, NY: Palgrave Macmillan.

Saudi Arabia Central Department of Statistics and Information. (2015) *statistical year book.* Saudi Arabia: Central Department of Statistics and Information.

Saudi Arabia Monetary Agency (SAMA) (2014) *Fiftieth Annual Report.* Available online :http://www.sama.gov.sa/enUS/EconomicReports/AnnualReport/5600_R_Annual_En_50_Apx.pdf.

Saudi Arabia Monetary Agency (SAMA) (2015) *Fifty First Annual Report*. Available online: http://www.sama.gov.sa/enUS/EconomicReports/AnnualReport/5600_R_Annual_En_51_Apx.pdf.

Saudi Arabian Monetary Agency (2015) *Financial Stability Report*. Available online: http://www.sama.gov.sa/enUS/EconomicReports/Financial%20Stability%20Report/FINANCIAL%20STABILITY%20REPORT-2015.pdf.

Saudi Vistion (2030) (2016) *Saudi Arabia's Vision for 2030.* Available online: http://vision2030.gov.sa/en.

Saunders, M., Lewis, P. & Thornhill, A. (2015) *Research methods for business student*. Edinburgh Gate, Harlow: Pearson Education Limited.

Sawhney, M. & Prandelli, E. (2000) Communities of creation: Managing distributed innovation in turbulent markets. *California Management Review*, 42(4), 24-54.

Schein, E. H. (2017) *Organizational culture and leadership*, 5th edition. Hoboken, New Jersey: Wiley & Sons, Inc.

Schiller, S. Z., Mennecke, B. E., Nah, F. F. H. & Luse, A. (2014) Institutional boundaries and trust of virtual teams in collaborative design: An experimental study in a virtual world environment. *Computers in Human Behavior*, 35, 565-577.

Schmitz, S., Rebelo, T., Gracia, F. J. & Tomás, I. (2014) Learning culture and knowledge management processes: To what extent are they effectively related?. *Revista de Psicología del Trabajo y de las Organizaciones*, 30(3), 113-121.

Schultze, U. & Leidner, D. E. (2002) Studying knowledge management in information systems research: Discourses and theoretical assumptions. *MIS Quarterly*, 26(3), 213-242.

Schulze, A. & Hoegl, M. (2008) Organizational knowledge creation and the generation of new product ideas: A behavioral approach. *Research Policy*, 37(10), 1742-1750.

Schumacker, R. E. & Lomax, R. G. (2010) *A beginner's guide to structural equation modelling.* London: The University of Alabama.

Schumann, C. & Tittmann, C. (2010) Potentials for externalizing and measuring of tacit knowledge within knowledge nodes in the context of knowledge networks. In Harorimana D. (ed) *Cultural implications of knowledge sharing, management and transfer: Identifying competitive advantage.* Hershey, PA: Information Science Reference, 84-107.

Sekaran, U. & Bougie, R. (2010) *Research methods for business: A skill building approach*. UK: John Wiley & Sons.

Serban, A. M. & Luan, J. (2002) Overview of knowledge management. *New Directions for Institutional Research*, 2002(113), 5-16.

Seyedyousefi, N., Fard, S. M. H. & Tohidi, F. (2016) The role of organizational culture in knowledge management. *Mediterranean Journal of Social Sciences*, 7(5), 412- 416.

Shaft, T. M. & Vessey, I. (1998) The relevance of application domain knowledge: Characterizing the computer program comprehension process. *Journal of Management Information Systems,* 15(1), 51-78.

Shah, R. & Goldstein, S. M. (2006) Use of structural equation modeling in operations management research: Looking back and forward. *Journal of Operations Management*, 24(2), 148-169.

Shah, R. & Ward, P. T. (2003) Lean manufacturing: context, practice bundles, and performance. *Journal of Operations Management*, 21(2), 129-149.

Shahzad, K., Bajwa, S. U., Siddiqi, A. F. I., Ahmid, F. & Raza Sultani, A. (2016) Integrating knowledge management (KM) strategies and processes to enhance organizational creativity and performance: An empirical investigation. *Journal of Modelling in Management*, 11(1), 154-179.

Shani, A. B., Sena, J. A. & Stebbins, M. W. (2000) Knowledge work teams and groupware technology: Learning from Seagate's experience. *Journal of Knowledge Management*, 4(2), 111-124.

Shih, C. P. & Chou, H. F. (2012) The Effect of knowledge management strategies and enablers on knowledge creation process and organizational performance by using partial least squares regression method. *International Journal of Knowledge and Systems Science*, 3(4), 38-52.

Shih, K. H., Chang, C. J. & Lin, B. (2010) Assessing knowledge creation and intellectual capital in banking industry. *Journal of Intellectual Capital*, 11(1), 74-89.

Shu, C., Page, A. L., Gao, S. & Jiang, X. (2012) Managerial ties and firm innovation: Is knowledge creation a missing link?. *Journal of Product Innovation Management*, 29(1), 125-143.

Siadat, S. H., Naeiji, M. J. & Maleki, C. (2015) Impact of organizational knowledge management on innovative behavior: A study in a logistic sector. *International Journal of Operations and Logistics Management*, 4(2), 152-164.

Sin, A.B., Zailani, S. & Ramayah, T. (2010) Six Sigma and organisational performance: A knowledge creation perspective. *International Journal of Productivity and Quality Management*, 6(2), 182-212.

Singer, A. E. & Singer, M. S. (1997) Management-science and business-ethics. *Journal of Business Ethics*, 16(4), 385-395.

Singh, S. K. (2008) Role of leadership in knowledge management: A study. *Journal of Knowledge Management*, 12(4), 3-15.

Six, F. & Sorge, A. (2008) Creating a high-trust organization: An exploration into organizational policies that stimulate interpersonal trust building. *Journal of Management Studies*, 45(5), 857-884.

Skyrme, D. & Amidon, D. (1997) The knowledge agenda. *Journal of Knowledge Management*, 1(1), 27-37.

Skyrme, D. J. & Amidon, D.M. (1998) New measures of success. *Journal of Business Strategy*, 19(1), 20-24.

Smircich, L. (1983) Concepts of culture and organizational analysis. *Administrative Science Quarterly*, 28(3), 339-358.

Smith, A. (2004) Towards effective knowledge management: Choosing the right strategy. *Strategic Decision*, 20(11), 14-16.

Smith, D. (2006) Designing an innovative Britain. *ESRC: The Edge*, 22, 2.

Smith, P.A. & McLaughlin, M. (2003) Succeeding with knowledge management: Getting the people-factors right. *In Proceedings of the 6th World Congress on Intellectual Capital and Innovation*. McMaster University, Hamilton, 15-17 January 2003.

Soderquist, K., Chanaron, J. J. & Motwani, J. (1997) Managing innovation in French small and medium-sized enterprises: An empirical study. *Benchmarking for Quality Management & Technology*, 4(4), 259-272.

Song, J. (2008) *The integrative determinants of organizational performance improvement: the impacts of dimensions of learning organization and dynamic knowledge creation*. PhD Thesis. Pennsylvania State University.

Soon, T. T. & Zainol, F. A. (2011) Knowledge management enablers, process and organizational performance: Evidence from Malaysian enterprises. *Asian Social Science*, 7(8), 186-202.

Sorensen, J. B. (2002) The strength of corporate culture and the reliability of firm performance. *Administrative Science Quarterly*, 47(1), 70-91.

Spector, P. E. & Brannick, M. T. (2009) Common method variance or measurement bias? The problem and possible solutions. In Buchanan D. & Bryman A. (eds) *Handbook of organizational research method.* London: Sage, 346-362.

Spector, P. E. (2006) Method variance in organizational research: Truth or urban legend?. *Organizational Research Methods*, 9(2), 221-232.

Spender, J. C. (1996) Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, 17(S2), 45-62.

Stevens, J. (2002) *Applied multivariate statistics for the social sciences*. Mahwah, New Jersey: Lawrence Erlbaurn Associates.

Stewart, T. (1998) *Intellectual capital: The new wealth of organizations*. New York: Doubleday.

Stonehouse, G. H. & Pemberton, J. D. (1999) Learning and knowledge management in the intelligent organisation. *Participation and Empowerment: An International Journal*, 7(5), 131-144.

Straub, D. W. (1989) Validating instruments in MIS research. *MIS Quarterly*, 13(2), 147-169.

Suhr, D. D. (2006) Exploratory or confirmatory factor analysis. *SAS Users Group International Conference (SUGI31)*. San Francisco, 26-29 March 2006, 200-31.

Suresh, R. (2016) *Knowledge management – An overview. Knowledge management advantage.* Available online http://www.providersedge.com/docs/km_articles/km_an_overview.pdf.

Sussman, S. W. & Siegal, W. S. (2003) Informational influence in organizations: An integrated approach to knowledge adoption. *Information Systems Research*, 14(1), 47-65.

Suveatwatanakul, C. (2013) Effect of knowledge sharing factors on the learning organization in tourism and hospitality. *In Proceeding of International Conference on Information and Social Science (ISS) & (MLB).* Japan, 24-26 September 2013, 24-26.

Sveiby, K. E. & Simons, R. (2002) Collaborative climate and effectiveness of knowledge work-An empirical study. *Journal of Knowledge Management*, 6(5), 420-433.

Svensson, G. & Wood, G. (2011) A conceptual framework of corporate and business ethics across organizations: Structures, processes and performance. *The Learning Organization: An International Journal*, 18(1), 21-35.

Szulanski, G. (1996) Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17(S2), 27-43.

Szulanski, G. (2003) *Sticky knowledge: Barriers to knowing in the firm*. London: Sage.

Tabachnick, B. G. & Fidell, L. S. (2007) *Using multivariate statistics*, 5th edition. Boston, MA: Allyn and Bacon.

Tabachnick, B. G. & Fidell, L.S. (2001) *Using multivariate statistics*, 4th edition. Needham Heights, MA: Allyn & Bacon.

Tan, K. C., Kannan, V. R. & Narasimhan, R. (2007) The impact of operations capability on firm performance. *International Journal of Production Research*, 45(21), 5135-5156.

Tan, N. L., Lye, Y. H., Ng, T. H. & Lim, Y. S. (2010) Motivational factors in influencing knowledge sharing among banks in Malaysia. *International Research Journal of Finance and Economics*, 44, 191-201.

Taylor, A. & Greve, H. R. (2006) Superman or the fantastic four? Knowledge combination and experience in innovative teams. *Academy of Management Journal*, 49(4), 723-740.

Teece, D. J. (1998) Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review*, 40(3), 55-79.

Teece, D.J. (2000) *Managing intellectual capital: Organizational, strategic, and policy dimensions*. Oxford: Oxford University Press.

Teerajetgul, W. & Charoenngam, C. (2006) Factors inducing knowledge creation: Empirical evidence from Thai construction projects. *Engineering, Construction and Architectural Management*, 13(6), 584-599.

Tellefsen, T. & Thomas, G. P. (2005) The antecedents and consequences of organizational and personal commitment in business service relationships. *Industrial Marketing Management*, 34(1), 23-37.

Theriou, N., Maditinos, D. & Theriou, G. (2011) Knowledge Management Enabler Factors and Firm Performance: An empirical research of the Greek medium and large firms. *European Research Studies*, 14(2), 97-134.

Thierauf, R. J. (1999) *Knowledge management systems for business.* Westport, CT: Greenwood Publishing Group.

Thompson, B. (2004) *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. Washington DC: American Psychological Association.

Thompson, M. & Walsham, G. (2004) Placing knowledge management in context. *Journal of Management Studies*, 41(5), 725-747.

Tian, J., Nakamori, Y. & Wierzbicki, A. P. (2009) Knowledge management and knowledge creation in academia: A study based on surveys in a Japanese research university. *Journal of Knowledge Management,* 13(2), 76-92.

Tousi, M. (1993) *Organizational culture.* Tehran: Education of Public Management Publishing.

Treiman, D. J. (2009) *Quantitative data analysis: Doing social research to test ideas*. San Francisco: Jossey-Bass.

Tsai, M. & Li, Y. (2007) Knowledge creation process in new venture strategy and performance. *Journal of Business Research,* 60(4), 371-381.

Tsai, M. T. & Lee, K. W. (2006) A study of knowledge internalization: From the perspective of learning cycle theory. *Journal of Knowledge Management*, 10(3), 57-71.

Tsai, Y. H., Ma, H. C., Lin, C. P., Chiu, C. K. & Chen, S. C. (2014) Group social capital in virtual teaming contexts: A moderating role of positive affective tone in knowledge sharing. *Technological Forecasting and Social Change*, 86, 13-20.

Tseng, S. M. (2010) The correlation between organizational culture and knowledge conversion on corporate performance. *Journal of Knowledge Management*, 14(2), 269-284.

Tsoukas, H. & Mylonopoulos, N. (2004) Introduction: Knowledge construction and creation in organizations. *British Journal of Management*, 15(S1), S1-S8.

Tsoukas, H. & Vladimirou, E. (2001) What is organizational knowledge?. *Journal of Management Studies*, 38(7), 973-993.

Tubigi, M. & Alshawi, S. (2015) The impact of knowledge management processes on organisational performance: The case of the airline industry. *Journal of Enterprise Information Management*, 28(2), 167-185.

Turner, A. (2009) *The financial crisis and the future of financial regulation. The Economist Inaugural Lecture*. Oxford: Oxford University Press.

Vencatachellum, I. & Jeetah, V. (2008) The state of knowledge management among the commercial banks in Mauritius. *In 9th International Conferences on HRD Research and Practice across Europe*. Lille, France, May 2008, 1-19.

Verona, G. & Ravasi, D. (2003) Unbundling dynamic capabilities: An exploratory study of continuous product innovation. *Industrial and Corporate Change*, 12(3), 577-606.

Vicari, S. & Troilo, G. (2000) Organizational creativity: A new perspective from cognitive systems theory. In von Krogh, G. & Nishiguchi, T. (eds) *Knowledge creation: A source of value*. New York: St. Martin's Press, 63-88.

Von Krogh, G. (1998) Care in knowledge creation. *California Management Review*, 40(3), 133-153.

Von Krogh, G., Ichijo, K. & Nonaka, I. (2000) *Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation*. Oxford: Oxford University Press.

Von Krogh, G., Nonaka, I. & Rechsteiner, L. (2012) Leadership in organizational knowledge creation: A review and framework. *Journal of Management Studies*, 49(1), 240-277.

Wallace, D. (2007) *Knowledge management: Historical and cross-disciplinary themes*, 2nd edition. USA: Libraries Unlimited Inc.

Wallace, D. P., Van Fleet, C. & Downs, L. J. (2011) The research core of the knowledge management literature. *International Journal of Information Management*, 31(1), 14-20.

Wang, L., Malhotra, D. & Murnighan, J. K. (2011) Economics education and greed. *Academy of Management Learning & Education*, 10(4), 643-660.

Wang, Z. & Wang, N. (2012) Knowledge sharing, innovation and firm performance. *Expert Systems with Applications*, 39(10), 8899-8908.

Weinberg, S. L. & Goldberg, K. P. (1990) *Statistics for the behavioral sciences.* Cambridge: Cambridge University Press.

Weir, D. & Hutchings, K. (2005) Cultural embeddedness and contextual constraints: Knowledge sharing in Chinese and Arab cultures. *Knowledge and Process Management*, 12(2), 89-98.

Weir, D. T. (1998) The fourth paradigm. In AlShamli, A. & Denton, J. (eds) *Business management in the Arab Middle East.* Kuwait: Gulf Management Centre.

Wernerfelt, B. (1984) A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.

Whitehill, M. (1997) Knowledge-based strategy to deliver sustained competitive advantage. *Long Range Planning*, 30(4), 621-627.

Wiig, K. M. (1997) Knowledge management: An introduction and perspective. *Journal of Knowledge Management*, 1(1), 6-14.

Willke, H. (1998) *Systemisches wissensmanagement*. Stuttgart: Lucius und Lucius.

Wilson, T. D. (2002) The nonsense of knowledge management. *Information Research*, 8(1), 8-1.

Winter, G. (2000) A comparative discussion of the notion of 'validity' in qualitative and quantitative research. *The Qualitative Report*, 4(3), 1-14.

Woodman, R. W., Sawyer, J. E. & Griffin, R. W. (1993) Toward a theory of organizational creativity. *Academy of Management Review*, 18(2), 293-321.

Wu, S. J., Melnyk, S. A. & Flynn, B. B. (2010) Operational capabilities: The secret ingredient. *Decision Sciences*, 41(4), 721-754.

Xu, J., Rémy H., Caillaud, E. & Mickaël, G. (2010) Macro process of knowledge management for continuous innovation. *Journal of Knowledge Management*, 14(4), 573-59.

Yamagata, K. (2002) *Knowledge management in banking industry: Comparative analysis between US and Japan*. Master dissertation. Massachusetts Institute of Technology.

Yang, C. H. (2004) *Knowledge management: Theories, practices and cases*. Taipei: Wun Chin.

Yang, J. T. (2007) Knowledge sharing: Investigating appropriate leadership roles and collaborative culture. *Tourism Management*, 28(2), 530-543.

Yeh, Y. J., Lai, S. Q. & Ho, C. T. (2006) Knowledge management enablers: A case study. *Industrial Management & Data Systems*, 106(6), 793-810.

Yin, R. K. (2009) *Doing case study research*, 4th edition. Thousand Oaks, CA: Sage.

Yukl, G. A. (2002) *Leadership in organizations*, 5th edition. Eaglewood Cliffs, NJ: Prentice-Hall.

Zack, M. H. (1999) Developing a knowledge strategy. *California Management Review*, 41(3), 125-145.

Zack, M. H. (2002) Developing a knowledge strategy. In Choo, C. & Bontis, N. (eds) *The strategic management of intellectual capital and organizational knowledge.* Oxford, UK: Oxford University Press, 255-276.

Zack, M., McKeen, J. & Singh, S. (2009) Knowledge management and organizational performance: An exploratory analysis. *Journal of Knowledge Management*, 13(6), 392-409.

Zaim, H., Tatoglu, E. & Zaim, S. (2007) Performance of knowledge management practices: A causal analysis. *Journal of Knowledge Management*, 11(6), 54-67.

Zand, D. E. (1972) Trust and managerial problem solving. *Administrative Science Quarterly*, 17(2), 229-239.

Zelazny, R. (2015) Information society and knowledge economy-essence and key relationships. *Journal of Economics & Management*, 20(1), 5-22.

Zheng, W., Yang, B. & McLean, G. N. (2010) Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management. *Journal of Business Research*, 63(7), 763-771.

Zikmund, W. G. (2003) *Business research methods*, 7th edition. Ohio: Thomson South Western.

Zu, X., Fredendall, L. D. & Douglas, T. J. (2008) The evolving theory of quality management: The role of Six Sigma. *Journal of Operations Management*, 26(5), 630-650.

APPENDICES

Appendix A: The Questionnaire
(English Cover Letter, Arabic Cover Letter, Research Survey in Arabic and English)

PhD Student
Business School,
The University of Hull,
Cottingham Road, Hull, HU6 7RX,
United Kingdom
Email: A.F.Almulhim@2014.hull.ac.uk

Dear Prospective Participant,

I am Abdullah F. Al Mulhim, a PhD candidate at Hull University, Business School, United Kingdom. Working toward a doctorate degree in Management. You are being invited to take part in an exciting research study focused on Organisational Culture, Knowledge Creation Process and Organisational Performance.

To participate, please read the following:

TITLE: The Impact of Organisational Culture and Knowledge Creation Process on Organisational Creativity and Performance in Knowledge-Intensive Banks.

PURPOSE: is to analyse relationship among organisational culture, knowledge creation process and performance in knowledge-intensive banks.

PROCEDURE: your participation will involve completing the enclosed questionnaire, which comprises some background questions, and statements about your opinion on knowledge creation and performance improvement within your bank.

POTENTIAL BENEFITS: your participation will help to further understand the impact of organisational culture and knowledge creation on creativity and performance in your bank.

CONFIDENTIALITY: confidentiality of the information you provide is assured. The questionnaire forms do not require you to identify yourself, and only grouped data will be used in the research. The information collected will be only used for the purpose of this study.

RIGHT TO REFUSE TO PARTICIPATE: your participation is voluntary.

MECHANISM FOR QUESTIONNAIRE DISTRIBUTION AND RETURN:
The required data will be collected by paper questionnaire survey.

Your cooperation in participating in this research is deeply appreciated.
Yours sincerely
Abdullah Fahad Al Mulhim

UNIVERSITY OF Hull
PhD Student
Business School,
The University of Hull,
Cottingham Road, Hull, HU6 7RX,
United Kingdom
Email: A.F.Almulhim@2014.hull.ac.uk

أخي الكريم

السلام عليكم ورحمة الله وبركاته

يطيب لي دعوتك للمساهمة الفاعلة في اجراء بحثي الأكاديمي من خلال تعبئتك لهذه الأستمارة والتي تحتوي علي بيانات مطلوبة لأتمام البحث الذي اقوم بإعداده في مجال إدارة المعرفة من جامعة هُل البريطانية والذي يركز علي "العلاقة بين الثقافة التنظيمية وخلق المعرفة والأبتكار واداء البنوك السعودية ".

عنوان الدراسة: أثر الثقافة التنظيمية وعملية خلق المعرفة علي الإبداع التنظيمي والأداء في البنوك ذات المعرفة المكثفة

الهدف من البحث: معرفة مدي التأثير الأيجابي او السلبي للثقافة التنظيمية وتكوين المعرفة علي الأبداع والأداء التنظيمي للبنوك السعودية.

طريقه المشاركة: يمكنك المشاركة من خلال تعبئة هذه الأستمارة وتسليمها للباحث ولن يأخذ من وقتك سوي عشرين دقيقة فقط.

الفائدة المتوقعة: مشاركتك في هذه الدراسة ستساعد علي الوصول الي فهم اعمق لمدي تأثير المعرفة في قطاع البنوك.

الخصوصية: أسئلة الأستبانة لا يتطاب منك تحديد هويتك او أسمك – كما ان خصوصية المعلومات التي ستقدمها مضمونة ولن يطلع عليها احد ولن تستخدم لأي هدف اخر سوي البحث العلمي.

حق رفض المشاركة: مشاركتك في هذه الدراسة تطوعية بشكل كامل.

طريقه توزيع وجمع الأستبانة: تعتمد هذه الأستبانة علي طريقة التعبئة والتسليم للباحث في اليوم التالي– لذا يرجي الحرص علي الأجابة علي جميع الأسئلة والتأكد من التسليم.

الموافقه علي المشاركة: تعبئتك لهذه الأستبانة وأعادتها يعتبر موافقة ضمنية منك علي المشاركة في هذه الدراسة.

ان مشاركتكم محل تقدير ولكم جزيل الشكر

الباحث / عبدالله فهد الملحم

Appendix A: The Questionnaire

Part 1: Personal & Professional Background: (المعلومات الشخصية والمهنية) الجزء الاول:
(Please tick one) - (الرجاء أختيار إجابة واحدة فقط)

1. **Name of the bank: (اسم البنك)**
   □ **Riyadh Bank (بنك الرياض)** □ **National Commercial Bank (NCB) (البنك الأهلي)**

2. **What is the management level of your position? (ما هو المستوي الاداري لوظيفتك)**
   □ **Top Management (إدارة عليا)**
   □ **Middle Management (إدارة وسطي)**
   □ **Lower Management (إدارة دنيا)**

3. **Nationality: الجنسية**
   □ **Saudi (سعودي)** □ **Non Saudi (غير سعودي)**

4. **Gender: الجنس**
   □ **Male (ذكر)** □ **Female (أنثي)**

5. **Age: العمر**
   □ **22 years old or below (أقل من 22 سنة)** □ **23–30 years old (30-23 سنة)**
   □ **31–40 years old (31-40سنة)**
   □ **41–50 years old (50-41 سنة)** □ **above 50 years old (أكبر من 50 سنة)**

6. **Length of time spent in the banking sector (in total):**
   (عدد سنوات العمل في قطاع البنوك)
   □ **Less than 5-Years (أقل من 5 سنوات)** □ **5-10 Years (ما بين 5-10 سنة)**
   □ **11-15 Years (مابين 11-15 سنة)** □ **More than 15 Years (أكثر من 15 سنة)**

7. **Duration of employment with this bank: (عدد سنوات عملك في هذا البنك)**
   □ **Less than 5-Years (أقل من 5 سنوات)** □ **5-10 Years (ما بين 5-10 سنة)**
   □ **11-15 Years (مابين 11-15 سنة)** □ **More than 15 Years (أكثر من 15 سنة)**

8. **The highest degree you are holding is: (أعلي درجة علمية تحصلت عليها)**
   □ **Less than Bachelor (اقل من البكالوريوس)** □ **Bachelor (بكالوريوس)**
   □ **Master degree (درجه الماجستير)** □ **PhD degree (درجه الدكتوراه)**

9. **Employment status: (ماهو وضعك الوظيفي)**
   □ **Full time (دوام كامل)** □ **Part Time (دوام جزئي)** □ **Contracted (تعاقد)**
   □ **Internship (فتره تدريب)** □ **On call (تحت الطلب)** □ **other (أخري)**

10. **How do you describe the decision-making process in your bank?**
    (كيف يمكنك وصف عملية اتخاذ القرارات في البنك لديكم)
    □ **Centralised (مركزيه)** □ **Decentralised (غير مركزيه)**

11. Is there a department for knowledge management or information technology in your bank?

(هل توجد إداره مختصة بإدارة المعرفة او تكنولوجيا المعلومات في البنك لديكم)

□ Yes (نعم) □ No (لا) □ I do not know (لا أعلم)

12. About how long has your bank been implementing process improvement?

(تقريبا حدد الفترة التي بدأ البنك يتنفيذ إجراءات تطوير وتحسين العمليات البنكية)

□ Not yet started (لم يبدء حتي الان) □ less than 1 year (أقل من سنه)

□ 1-3 Years (منذ فتره 1-3 سنه) □ don't know (لا أعلم)

13. Do you have an employee(s) whose full-time job is to implement and/or direct process improvements within your bank?

(هل يوجد بالبنك موظفين مختصين بمهام تطوير او تحسين العمليات البنكية)

□ Yes (نعم) □ No (لا) □ I do not Know (لا أعلم)

14. How frequently does your bank implement process improvements?

(الفترات الزمنية لتطوير العمليات البنكية)

□ Monthly (كل شهر) □ Quarterly (كل ربع سنه) □ Yearly (كل سنه)

□ I do not know (لا أعلم)

Part 2: The following activities regarding Organisational Culture, Knowledge Creation Processes, Organisational Creativity, and Organisational Performance in Saudi Banks. Please indicate to what extent does your bank performs these activities? (Please tick one answer in each line across).

هذا الجزء من الاستبيان يتعلق بالثقافة التنظيمية و خلق او تكوين المعرفة والأبداع و الأداء التنظيمي بقطاع البنوك – حدد الي اي مدي انت توافق او تختلف مع العبارات التاليه – (فضلا أجابة واحدة لكل سؤال)

1 = Strongly Disagree غير موافق بشدة, 2 = Disagree غير موافق, 3 = Neutral محايد,

4 = Agree موافق, 5 = Strongly Agree موافق بشدة

	Activities ألأنشطه	1	2	3	4	5
1	OC5: Our bank adopts an atmosphere that is conductive to our own capability to create novel and useful ideas البنك يوفر مناخ يساعد ويحفز علي خلق أفكار جديدة ومفيدة					
2	OC3: Our bank devotes much time for creating novel and useful ideas البنك يكرس الكثير من الوقت لخلق أفكار جديدة ومفيدة					
3	CC1: Our bank members are supportive جميع الموظفين يدعمون توجهات البنك لخلق أفكار جديدة					
4	KCI3: Our bank mostly embraces learning by observation البنك في الغالب يركز علي التعلم من خلال الملاحظة					
5	KCS2: Our bank ordinarily utilises apprentices and guides to exchange information البنك يستقطب ذوي الخبره والمدربين لتبادل الأفكار					
6	KCI1: Our bank mostly embraces on-the-job training يتبع البنك أسلوب التدريب علي رأس العمل					
7	KCI4: Our bank usually forms teams as a model and conducting experiments and shares results with all departments البنك يشكل فرق عمل لتبادل المعارف والتجارب المختلفة بين الأقسام					
8	KCS4: Our bank more often adopts employee rotation across areas يتبع البنك أسلوب دوران الموظف بين الفروع والمناطق					
9	KCI2: Our bank mostly embraces learning by doing يشجع البنك أسلوب التعلم عن طريق الممارسة					
10	OPG3: Our bank is typically satisfied by market share growth البنك يشكل عام مقتنع بمعدل نمو حصتة السوقية					
11	OPP1: Our bank is generally satisfied by return on sales البنك بشكل عام مقتنع بمعدل نمو العائد السنوي					
12	CC2: Our bank members are helpful جميع الموظفين في البنك منتجون					
13	OPP3: Our bank is generally satisfied by gross profit margin البنك بشكل عام راض عن مستوي هامش الربح الأجمالي					
14	CT1: Our bank members are generally trustworthy موظفي البنك لدينا جديرين بالثقة بشكل عام					

15	KCE3: Our bank implements pointers to expertise يستخدم البنك مؤشرات لقياس الخبرة والمعرفة					
16	CC4: There is a willingness to accept responsibility for failure الموظفين بالبنك علي استعداد لتقبل المسؤلية عن الفشل					
	Activities ألأنشطه	1	2	3	4	5
17	KCE2: Our bank generally embraces groupware and other learn coordinated effort instruments يقوم البنك بتشكيل فرق العمل وطرق اخري لتنسيق الجهود					
18	CC3: There is a willingness to collaborate across bank units هناك استعداد لدي الموظفين للتعاون بين جميع اقسام وفروع البنك					
19	KCC1: Our bank regularly adopts web-based access to data يتبني ويشجع البنك الموظفين للحصول علي البيانات والمعلومات عن طريق شبكة الإنترنت					
20	KCC2: Our bank regularly utilises web pages يستخدم البنك صفحات الويب علي شبكة الإنترنت للمساعده علي الحصول علي المعلومات					
21	CT2: Our bank members have reciprocal faith in others' ability هناك ثقة متبادلة بين موظفي البنك					
22	OPG1: Our bank is typically satisfied by sale growth البنك مقتنع بمستوي النمو بشكل عام					
23	CT3: Our bank members have relationships based on reciprocal faith العلاقات بين موظفي البنك مبنية علي الثقة المتبادلة					
24	CT4: Our bank members have reciprocal faith in others' decision toward Bank interests than individual interests هناك ثقة متبادلة بين الموظفين حول قرارات الاخرين لوضع مصالح البنك فوق المصالح الشخصية					
25	OC4: Our bank dynamically generates novel and useful ideas (services) يقوم البنك بخلق أفكار ديناميكية جديدة ومفيدة فيما يتعلق بخدماتة المصرفية					
26	CL1: Our bank provides various formal training programs for performance of duties يوفر البنك برامج تدريبية مختلفة لتمكين الموظفين من اداء مهامهم الوظيفية بكفاءة					
27	OPG2: Our bank is typically satisfied by employee growth البنك راض بشكل عام عن مستوي النمو في التوظيف					
28	CL3: Our bank provides opportunities for informal individual development other than formal training such as work assignments and job rotation يوفرالبنك طرق غير تقليدية لتطوير قدرات الموظفين بخلاف التدريب التقليدي مثل مهام العمل والتناوب علي الوظائف					
29	OPE2: Our bank is typically satisfied with return on equity					

	البنك عاده راض عن مستوي العائد علي حقوق المساهمين					
30	**CL2: Our bank encourages employee to attend seminars, symposia, etc** يشجع البنك الموظفين لحضور حلقات دراسية وندوات ومحاضرات					
31	**KCC3: Our bank regularly utilises databases** يستخدم موظفي البنك قواعد البيانات بانتظام					
32	**CL4: Our bank provides various programs such as community gatherings** يوفر البنك برامج مختلفة مثل الإجتماعات الترفيهية والتعارف					
33	**KCS1: Our bank ordinarily implements cooperative projects over directorates** يركز البنك علي زيادة التنسيق والتكامل والتعاون بين الفروع والأقسام المختلفة					
34	**KCE4: Our bank generally implements modelling based on analogies and metaphors** يوجد لدي البنك نظام لمراقبة وقياس التشارك بالمعرفة بين منسوبية					
35	**KCS3: Our bank more often implements brainstorming retreats or camps** ينسق البنك للموظفين رحلات و إجتماعات ترفيهية خارج نطاق العمل للمحافظة علي التواصل وتبادل الخبرات بينهم					
36	**OPP2: Our bank is generally satisfied by net profit margin** البنك بشكل عام راض عن مستوي هامش الربح					
37	**KCE5: Our bank generally captures and exchanges experts' knowledge** يسعي البنك للاستفادة من ذوي الخبرة لتبادل الأفكار					
38	**KCE1: Our bank generally embraces a problem-solving system based on a technology like case-based thinking** في الغالب يستعين البنك علي حل المشاكل بأستخدام طريقة التفكير القائم علي (دراسة حالة)					
39	**OC1: Our bank has created many novel and useful ideas (services)** قام البنك بتطوير وأيجاد أفكار جديدة ومفيدة لتحسين خدماتة المصرفية					
40	**OPE3: Our bank is typically satisfied with return on asset** البنك راض عن مستوي العائد علي الأصول					
41	**KCC4: Our bank regularly adopts repositories of information, lessons learned, and best practices** يستخدم البنك قاعدة البيانات الخاصة به بأنتظام والتي تشمل الدروس المستفادة وأفضل الممارسات والتجارب السابقة					
42	**OC2: Our bank considers creating novel and useful ideas (services)** يركز ويشجع البنك علي خلق أفكار جديدة ومفيدة لتطوير خدماتة					
43	**OPE1: Our bank is typically satisfied with return on investment** البنك عادة راض عن مستوي العائد علي الأستثمار					