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**EXAMINING INTELLECTUAL CAPITAL,
ORGANIZATIONAL LEARNING, ENTREPRENEURIAL
ORIENTATION TOWARDS SMEs' INNOVATIVE
PERFORMANCE IN JORDAN**



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LEARNING, ENTREPRENEURIAL ORIENTATION TOWARDS
SMEs' INNOVATIVE PERFORMANCE IN JORDAN**

By

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UUM
Universiti Utara Malaysia

**Thesis Submitted to
School of Business Management
Universiti Utara Malaysia
In Fulfillment of the Requirement for the Doctor of Philosophy**

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Abstract

Innovative performance as a key asset is fundamental to building the competitive advantage of SMEs. This study examines empirically the direct relationship between intellectual capital, organizational learning and innovative performance amongst SMEs in Jordan. It also examines the moderating effect of entrepreneurial orientation on the relationship between intellectual capital, organizational learning and innovative performance. A total of 600 questionnaires were personally distributed to managers / owners of SMEs from three cities in Jordan (Amman, Irbid and Zarqa). Out of 600 questionnaires distributed, only 325 questionnaires were returned and usable for further analysis, representing a response rate of 54.1%. PLS SEM technique had been applied to analyses the data. The findings showed that intellectual capital (human capital and customer capital dimensions) were found positively and significantly related to innovative performance. The findings also revealed that organizational learning (information acquisition, information distribution and organizational memory) were found positively and significantly related to innovative performance. In addition, the results revealed that supports the effect of entrepreneurial orientation that moderate in relationship between intellectual capital (customer capital, but not human capital and structural capital) and innovative performance, meanwhile entrepreneurial orientation that not supported as moderator in relationship between organizational learning dimensions and innovative performance. This study contributes to enriching the body of knowledge on literature of intellectual capital, organizational learning and innovative performance within SMEs context. Based on the theoretical gaps, this study contribute by extending the body of knowledge by adding entrepreneurial orientation as moderator which other studies neglected to consider. The present study also provides SMEs managers with an empirical evidence that possessing strong intellectual capital, organizational learning and entrepreneurial orientation in its dimensions seem to help SMEs reinforce their ability to generate innovative performance. Potential limitations and directions for future research are also discussed.

Keywords: Innovative Performance; Intellectual Capital; Organizational Learning; Entrepreneurial Orientation; SMEs; Jordan

Abstrak

Prestasi inovatif sebagai aset utama merupakan asas kepada pembinaan kelebihan daya saing Perusahaan Kecil dan Sederhana (PKS). Kajian ini meneliti secara empirikal hubungan langsung antara modal intelek, pembelajaran organisasi dan prestasi inovatif. Kajian ini juga mengkaji kesan penyerderhana orientasi keusahawanan kepada hubungan antara modal intelek, pembelajaran organisasi dan prestasi inovatif. Sebanyak 600 soal selidik telah diedarkan secara peribadi kepada pengurus / pemilik PKS daripada tiga bandar di Jordan (Amman, Irbid dan Zarqa). Daripada 600 soal selidik diedarkan, hanya 325 soal selidik telah dikembalikan dan boleh digunakan untuk analisis seterusnya, mewakili kadar respons sebanyak 54.1% kadar maklum balas. Kaedah PLS-SEM telah digunakan untuk menganalisis data. Hasil kajian menunjukkan modal intelek (modal insan dan dimensi modal pelanggan) adalah positif dan berkaitan secara signifikan dengan prestasi inovatif. Hasil kajian juga menunjukkan pembelajaran organisasi (pemerolehan maklumat, pengedaran maklumat dan memori organisasi) adalah positif dan berkaitan secara signifikan dengan prestasi inovatif. Di samping itu, hasil kajian menunjukkan sokongan terhadap kesan orientasi keusahawanan yang menyederhanakan hubungan antara modal intelek (modal pelanggan, tetapi bukan modal insan dan modal struktur) dan prestasi inovatif, manakala orientasi keusahawanan tidak disokong sebagai penyerdahana dalam hubungan antara dimensi pembelajaran organisasi dan prestasi inovatif. Kajian ini menyumbang untuk memperkayakan lagi kandungan ilmu pengetahuan literatur modal intelek, pembelajaran organisasi dan prestasi inovatif dalam konteks PKS. Berdasarkan jurang teori, kajian ini menyumbang kepada ilmu pengetahuan dengan penambahan orientasi keusahawanan sebagai penyerdahana yang sering diabaikan kajian lain. Kajian masa kini juga memberikan bukti empirikal kepada pengurus PKS bahawa dengan mempunyai modal intelek yang kuat, pembelajaran organisasi dan orientasi keusahawanan dalam dimensinya dapat membantu memperkukuhkan keupayaan PKS untuk menghasilkan prestasi inovatif. Potensi, batasan kajian dan arah tuju untuk kajian akan datang juga dibincangkan.

Kata Kunci: Prestasi inovatif, Modal intelek, Pembelajaran Organisasi, Orientasi Keusahawanan, PKS, Jordan

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Innovation has been considered to be among the top sources of sustainable competitive advantage, as it brings improvements in new products and process, as well as contributes to performance value (Delgado, 2011). Innovation refers to a process where the organization creates and clarifies problems and then exerts effort to develop novel knowledge for its solution. Organization that can provides the most sought out product/services will survive and thrive in the market and will possess the biggest portion of the market share. Therefore, organizations are in need of creating innovative performance to direct them to create new products and services and enhancing the quality of their goods and services as well as acquiring an organizational structure that meets the requirements of competitive environment (Khalili, Nejadhussein & Fazel, 2013; 2013; Riani, 2013).

Though innovative performance is a significant aspect to increase and maintain competitive advantage, to continuously being innovative possess challenges for most organizations especially for the SMEs. Some may lack of resources, leadership and inadequate funding to be innovative, while some may lack of systematic innovation process and incentive to innovate and lack of support from the management.

According to MENA Enterprise Surveys (MENA ES) (2016), Jordan has a somewhat lower share of SME activity in manufacturing, which accounts for 43% of the SME population, but Jordanian SMEs are relatively young, with an average age of 15 years and they make a relatively low contribution to product or process innovation, as below Figure 1.1. The overall structure and composition of the SME segment is broadly comparable to the other FEMIP (The Facility for Euro-Mediterranean Investment and Partnership) countries; Algeria, Egypt, Gaza/West Bank, Israel, Jordan, Lebanon, Morocco, Syria, and Tunisia (Betz & Frewer, 2016).

	Jordan	FEMIP
SMEs, in percent	93.7	93.1
Manufacturing firms, in percent	42.7	37.9
Average age in years	15.3	17.9
Exporters, in percent	23.0	18.5
Foreign owned firms, in percent	3.8	5.5
Female owners, percent	13.1	16.8
Product or process innovation	18.1	27.6

Source: European Investment Bank (EIB).

Figure 1.1. The innovation of SME in Jordan and FEMIP

SMEs constitute 95% of the national economy components of Jordan, and ultimately contributes to 40% of the GDP, and they employ approximately 70% of the employees in the market in Jordan (Ministry of Industry, Trade & Supply, 2014b). Despite the vital contribution of the Jordanian SMEs, this sector has been faced with many challenges that have started with Jordan's development into a highly deregulated and open market economy such as; poor of knowledge to transfer innovative technologies as well as

weakness of skills of entrepreneurship (AL-allak, 2010). Maravelakis, Antoniadis, Jones and Moustakis (2006) highlighted that SMEs have shorter lines of communication, relatively informal decision making and more flexibility, which seems to give them an advantage for rapid innovation over large companies.

Accordingly to Al-mahrouq (2010), the importance of success factors SMEs in Jordan is the following order respectively: technical procedures and technology, structure of the firm, financial structure, marketing and productivity and human resources structure. It noticed the technical aspect occupied the front line of success, because it related to innovativeness in SMEs. Al-Hyari, Al-Weshah and Alnsour (2012) also showed that lack of new technology and information barriers, have a significant relationship with innovative performance of SMEs in Jordan, overview of SMEs in Jordan was attached in Appendix A.

1.2 Problem Statement

The innovative performance is taking part in the Jordan market, but still not in a very perceptible way. This is in spite of the fact that the government is actively supporting innovative performance as it launched a strategy for innovation consisting of set of projects at an estimated cost of around \$14.5 million, to be implemented during 2014-2018 (Shahateet, 2017). On one hand, Jordan urgently requires enhancing innovations and entrepreneurships considering the raising emergency bills and the rapidly growing

refugees' community. On the other hand, few SMEs in Jordan appreciate and recognize the power of ideas and research outside their community.

The level of innovative performance in SMEs is a reflection of the level of innovation in the country, so there is a clear difference between developing and developed countries. When comparing the level of innovative performance among the developed and developing countries, there are evidence showing the declining in innovative performance among countries. Table 1.1 shows the Global Innovation Index Rankings (2014-2016) that indicates some countries have maintained the level of innovation during the past three years, such as Switzerland, while, some countries moved forward in their ranking such as USA, Japan and China, and some countries dropped in the ranking, such as Jordan and Brazil. Jordan falls to 9th place among Arab nations, and 82ed on a global scale in terms of overall innovative performance. On the basis of the index, Jordan went from the 64th position in 2014, 75th in 2015 to 82 position in 2016. (GII, 2014;GII, 2015; GII, 2016).

Table 1.1
The global innovation index rankings (2014-2016)

Country	Ranking's Year			Progress Index
	2014	2015	2016	

Switzerland	1	1	1	
USA	6	5	4	
Japan	21	19	16	
China	29	29	25	
Brazil	61	70	69	
Jordan	64	75	82	

Similarly, according to the Global Competitiveness Report (2015–2016), Jordan ranked 40th out of 140 countries in innovation field. This report showed that Jordan occupied behind the developed countries. Furthermore, it also indicated that innovation is the most problematic factors for doing business in Jordan (World Economic Forum, 2015). As a result of previous statistics, innovation in Jordan is declining at the national level, especially in the business sector, so will be reflected on the SMEs sector.

Report from the Jordan Human Development Report (2011) also indicates to the poverty of SMEs of innovation. Only 17% of the SMEs launch new products/services to the market that more than half of the firms make use of computers in their operations, but less than half make use of internet, e-mails and other technologies. These low technology uses influence the firms' value position – this is evidenced by the information. However one percentage of them has registered patents, and only 2% strictly adhere to quality

control procedures that are aligned with the ISO international quality certification system. In fact, 84% of the SMEs lack any kind of quality control system for their products/services (Ministry of Planning and International Cooperation, 2011).

The impact of importance of innovative performance to the overall performance of the firm, has led to the concern over current trends. However, innovative performance and the relationship with different factors have been investigated individually. For example, some authors studying it from the perspective of knowledge (e.g. Gloet & Terziovski, 2004; Jantunen, 2005; Madhoushi, Sadati, Delavari, Mehdivand & Mihandost, 2011; Moon, 2014; Vinding, 2006). Majority of the studies in literature concentrated on the variables pertaining to knowledge processing and knowledge use capabilities (Caloghirou et al., 2004), as well as knowledge sources (internal and external) (Serrano-Bedia, Concepción López-Fernández & García-Piqueres (2012) that has a significantly positive impact on innovative performance. Several other studies dedicated to the topic concentrated on the technological aspects (e.g. Ahuja & Katila, 2001; Chen, Chen & Vanhaverbeke, 2011; Sanal, Alpkan, Aren, Sezen & Ayden, 2013; Serrano-Bedi et al., 2012; Zhang, Jiang & Cantwell, 2014), the effect of absorptive strength of knowledge network (Boschma & TerWal, 2007), and the R&D and patents role (Jiang & Li, 2009) on the firms' innovative performance.

Few studies also, confined their examination to intellectual capital (e.g. Campanella, Rosaria Della Peruta & Del Giudice, 2014; Han & Li, 2015; Wu, Chang & Chen, 2008; Wu, Lin & Hsu, 2007) while others to organizational learning (e.g. Comlek, Kitapci,

Celik & Ozsahin, 2012; Fernandez-Mesa & Alegre, 2015; Wang & Ellinger, 2011). Therefore, owing to the inconsistent findings of the studies in literature, more in-depth studies are called for to identify the context within which innovative performance may be more advantageous.

However, there is a need for more empirical research to be conducted to shed light on the intellectual capital concept in order to furnish an accurate description of its effect. In regards to this, innovation refers to a learning culture that nurtures and promotes innovation and knowledge gain. Both innovation and new development are naturally brought about following the learning activities are conducted concerning knowledge acquisition and use (Comlek et al., 2012). On an unfortunate note, the innovation concept as a culture that promotes intellectual capital among SMEs is still a novelty (Halim et al., 2014).

Despite the wealth of past studies that were carried out concerning the relationship between intellectual capital and innovative performance, the findings they reported were inconsistent. Some studies that reported a positive and significant relationship between the two variables (e.g. Agostini , Nosella & Filippini, 2017; Alpkan, Bulut, Gunday, Ulusoy & Kilic, 2010; Chahal & Bakshi, 2015; El-Telbani, 2013; Gonzalez-Loureiro & Dorrego, 2012; Halim et al., 2014; Han & Li, 2015; Wu et al., 2008) revealed that intellectual capital can help the innovativeness of firms in processing, creating and launching new products and technologies, and producing optimum performance. On the other hand, Campanella et al. (2014) revealed that the public resources allocation, as an

intellectual dimension, negatively affects specific indicators of innovative performance, while Subramaniam and Youndt (2005) revealed that human capital negatively related to the strength of radical innovation and similarly, Manzaneque, Ramírez and Diéguez-Soto, (2017) showed that human capital positively but not significantly related to technological innovation. On context of SMEs , Halim et al., 2014, Halim, Ahmad, Taghizadeh, Ramayah and Mohamad, 2015, and Agostini et al., 2017 found a positive and significant relationship between intellectual capital dimensions and innovative performance in SMEs, while Leitner (2015) revealed that human capital and structural capital had no joint effect on the performance of product innovation in Austrian SMEs.

The essence of organizational learning (OL) in creating knowledge within the organization works towards sustaining competitive advantage that leads towards the creation of novel markets and positions (Jones & Macpherson, 2006). Stated clearly, an organization's knowledge is considered as an asset that contributes when managed towards the innovative performance of the firm (Wang & Ellinger, 2011). However, non-systematic and inconsistent practices of learning are still common in SMEs where firm infrastructure and HR-related solutions are relatively weak (Tam & Gray, 2016).

A review of literature also reveals that majority of the studies concerning organizational learning and innovative performance has shown a mix results when tested in various settings. Some prior studies that reported a positive and significant relationship between the two variables organizational learning and innovative performance (e.g. Dada & Fogg, 2014; Santos-Vijande, López-Sánchez & González-Mieres , 2012); Wang & Ellinger,

2011; Zhou, Hu, H & Shi, 2015). Contrastingly, Abo-Kashef (2013) revealed positive impacts as on some of OL dimensions innovative performance but such impact was insignificant. On context of SMEs , Beyene, Shi and Wu (2016), Fernandez-Mesa and Alegre (2015) and Salim and Sulaiman (2011) found a positive and significant relationship between organizational learning and innovative performance in SMEs, while Comlek et al. (2012) reported some of organizational learning dimensions are insignificant related to innovative performance in SMEs.

Also, many studies have been carried out to focus on the entrepreneurial orientation (EO)-Innovative performance (IP) relationship. Some studies (e.g. Khalili et al., 2013; Riani, 2013; Madhousi, 2011; Wiklund & Shepherd, 2003) showed a positive and significant relationship between EO and innovative performance. It revealed that innovative SMEs can help to process, create and launch novel products/technologies, and can facilitate optimum performance.

Added to the above, further research concerning entrepreneurial orientation was called for by Sanal et al. (2013) who specified its integration to a model comprising market orientation and ambidexterity to innovative performance. A similar suggestion was made by Khalili et al. (2013) who stressed on the need for studies to examine the EO-IP relationship in the context of different industries, types and organizational sizes. In this regard, Serrano-Bedia et al. (2012) revealed that innovative performance appeared to be similar between industries. Lastly, Fernandez-Mesa and Alegre (2015) suggested for

more empirical research to be done in various industries to examine the effect of entrepreneurial orientation on organizational learning and innovative performance.

Furthermore, there is a lack of studies on entrepreneurial orientation that focusing on intellectual capital and innovative performance, and between organizational learning and innovative performance. In the literature, studies on entrepreneurial orientation are moderating roles have shown in a sense in other context (e.g., Al-Nuiami, Idris & Moh'd AL-Ferokh, 2014; Bai & Ren, 2016; Gunawan, Jacob & Duysters, 2013; Reulink, 2012; ; Wu et al., 2008; Yang, Lang & Li, 2010). For example, a study conducted by Wu et al. (2008) found that entrepreneurial orientation moderates between intellectual capital and innovation. In a study of Al-Nuiami et al. (2014) found that entrepreneurial orientation is moderate in the relationship between environmental turbulence and innovation performance. Yang et al. (2010) proposed that entrepreneurial orientation's moderating can be effected positively between ambidextrous capabilities (explorative and exploitative capabilities) and innovation performance., and the same moderating role was investigated by Bai and Ren (2016) on the relationship between the balance dimension of organizational ambidexterity and innovation performance among companies from high and new technology industries in China. Entrepreneurial orientation's moderating effect has also been examined on the resource orientation and market orientation relationship with innovation performance at manufacturing SME's in Netherlands by Reulink (2012). Lastly, Gunawan et al. (2013) found entrepreneurial orientation and its dimension (risk taking) moderate between intra-cluster ties, extra-cluster ties and innovative performance among SMEs in the Cibaduyut footwear-manufacturing cluster in Indonesia.

Hence, within the limits of the researcher's knowledge, the researcher did not find single study that explains the role of moderating effect of entrepreneurial orientation in the relationships between intellectual capital and innovative performance; and between organizational learning and innovative performance. Therefore, it is an indicator that entrepreneurial orientation, as a moderating variable with innovative performance, has not been extensively examined.

Apart from that, not much attention has been given on the issues of innovative performance among SMEs. Extant literature evidences that several studies looked into the relationship between intellectual capital, organizational learning and innovative performance individually. Despite the differences in their findings, the commonality between them appears to support the relationship, with differences in certain aspects owing to the differences in industry. Following this line of contention, not many studies have been dedicated to examining innovative performance and this left the need to conduct additional studies to examine the moderating effect of entrepreneurial orientation on the relationships between intellectual capital, organizational learning and innovative performance among SMEs in Jordan. This caliber of study is called based on theoretical and practical justifications in order to resolve the SMEs challenges in the present times.

In summary, the Jordanian government has acknowledged the importance of innovation in developing the country economy. Thus, this research can make an effective contribution to understand the utmost way to plan for successful SMEs in Jordan. This

study also should benefit both scholars and practitioners regarding ways for increasing the level of innovative performance among the SMEs. A literature search reveals limited empirical studies on the issues of intellectual capital, organizational learning and innovative performance among Jordanian SMEs.

1.3 Research Questions

Based on the problems discussed above, the central question for this study would be “what factors are considered critical in influencing organizations’ innovative performance.” Specifically,

1. Does intellectual capital related to organization’s innovative performance?
2. Does organizational learning related to organization’s innovative performance?
3. Does entrepreneurial orientation moderate the relationship between intellectual capital and organization’s innovative performance?
4. Does entrepreneurial orientation moderate the relationship between organizational learning and organization’s innovative performance?

1.4 Research Objectives

Generally, this study aims to examine factors that influence innovative performance among SMEs in Jordan. Therefore, to answer the research questions posted above, the following research objectives were formulated:

1. To examine the relationship between intellectual capital and innovative performance;
2. To determine the relationship between organizational learning and innovative performance;
3. To examine the moderating effect of entrepreneurial orientation on the relationship between intellectual capital and innovative performance; and
4. To determine the moderating effects of entrepreneurial orientation on the relationship between organizational learning and innovative performance

1.5 Significance of the Study

This study can make effective contribution to both scholars and practitioners' understanding of the best way to enhance innovative performance among SMEs. From the theoretical perspective, potential findings from this study may contribute to the current body of knowledge in terms of factors that may contribute to the innovative performance and the moderating effects of entrepreneurial orientation on the relationship between intellectual capital, organizational learning and innovative performance. A literature search reveals many studies in the past examined intellectual capital,

organizational learning and entrepreneurial orientation separately in different studies when studying on innovative performance. Thus, by testing all the variables in one study, it will provide empirical evidence with a comprehensive new insight on innovative performance.

The findings of this study may also benefit the management of SMEs and this includes not only SMEs in Jordan on ways to increase innovative performance. This study will provide empirical evidence on the role of intellectual capital, organizational learning and entrepreneurial orientation on innovative performance. Thus, helping the SMEs' management to identify the most important factors that may enhance the innovative performance. This is a broader contribution that extends beyond the Jordanian context.

1.6 Scope of the Study

The main focus of this study is to examine factors that might influence innovative performance among SMEs in Jordanian context. However, in this study only factors such as intellectual capital (human capital, structure capital and customer capital) and organizational learning (information acquisition, information distribution, information interpretation and organizational memory) and entrepreneurial orientation were taken to test against innovative performance.

Data for this study were collected from SMEs located in Amman, Irbid and Zarqa. These cities were chosen as they have the highest number of SMEs in Jordan (86.6% of the total

SMEs and over 80% of the employment in Jordan). These three cities are also known to be the most densely populated in terms of types industries, where innovative activities are concentrated. For this study, only small and medium companies that have been in operation for more than 3 years were chosen. As shown in previous studies, SMEs that haven been in operation for 3 years and above are more able to introduce innovative activities. Since there are no published indicators on the level of innovative performance for each type of SMEs industries, this study includes all types of industries in SMEs. The study is cross-sectional where data are collected from 600 SMEs through distribution of questionnaire to the owners or managers of SMEs.

1.7 Definition of Key Terms

The study reports some definitions for the terms which it's used. Based on previous studies the definitions are explained.

Innovative Performance (IP) refers to the integration of the overall organizational achievements that stems from its renewal and improvements efforts in different innovative aspect of firm namely, processes, products, and structure (Gunday, Ulusoy, Kilic & Alpkan, 2011).

Intellectual Capital (IC) refers to the intangible assets that the firm has and it comprises of human capital, structural capital and customer capital (Wu et al., 2008).

Organizational Learning (OL) refers to the process that involves acquisition, distribution and dissemination of information, collective interpretation, and organizational memory among employees in the organization (Wang & Ellinger, 2011).

Entrepreneurial Orientation (EO) refers to the willingness of the firm towards adopting innovative activities and taking risks to come up with new products/services and to introduce new markets, and proactively make a move prior to its competitors in availing of new opportunities in the market (Soininen, Martikainen, Puumalainen, & Kyläheiko, 2012).

Small and Medium Enterprises (SMEs) refers to small enterprises whose assets do not exceed JD1 million or whose annual sales do not exceed JD1 million, and that employ between 5 and 19 employees, while medium enterprises are those whose assets are from JD1-3 million or whose annual sales fall from JD1-3 million, and that employ between 20 to 99 employees (Central Bank of Jordan, 2017).

1.8 Organization of Chapters

This chapter is the first of five chapters in this thesis. Chapter 2 gives general review of the literature on innovative performance. The concept of innovative performance and how it can be measured are also presented. Discussion in Chapter 2 continues with past empirical findings on factors that might influence innovative performance. The chapter

also discusses the research framework tested in the study and its' underpinning theory. The chapter concludes with the development of the research hypotheses.

Chapter three describes the method for the study, namely the research design and procedure. The chapter reports the selection of participants, sample types and size, and the development of questionnaire for the research. Chapter three ends with a brief description of the strategies and procedures that were used to analyze data collected from the survey.

Chapter 4 reports results of the study. This includes descriptive statistical analysis of the respondents and the measurement model such as assessment of the individual item's reliability, internal consistency reliability, convergent validity, discriminant validity, the significance of path coefficients, the amount of R-squared value, effect size and predictive relevance of the model. The results are summarized in a number of tables to facilitate interpretation.

Chapter 5 discusses the interpretation of the research findings for the study. The findings are compared to those found in the past research reviewed in Chapter 2. New findings are also discussed. The chapter ends with a discussion on limitations of the study, their implications for both researchers and practitioners, and some suggestions for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter sets out issues related to innovative performance as presented and discussed in the management literatures. These issues are reviewed to provide a theoretical foundation for the research. The chapter begins by describing the concept of innovative performance, and this followed by findings from past studies on innovative performance. The chapter then reviews how intellectual capital, organizational learning and entrepreneurial orientation related to innovative performance. The chapter concludes by discussing the underpinning theory, the research framework and the development of hypotheses.

2.2 Concept of Innovative Performance

Khalili et al. (2013) defined innovative performance as the newness of products and services as it comprises new products and projects that lead to enhance quality and to adopt organizational structure with competitive environment needs. According to Khalili et al. (2013), organization innovative performance can be measured by the number of novel goods/service projects, number of innovations in work processes/methods, number of innovations that can be patented, renewal of the structure of the organization to adapt to the dynamic conditions of the environment, marketing new products prior to competition and new products rate in the production line.

Other authors such as Hagedoorn and Cloudt (2003) have defined innovative performance as the achievements of ideas and they could be in the form of sketches and models of novel process, products, methods, and devices. Thinking along similar line, Hassan, Shaukat, Nawaz and Naz (2013) argued that innovative performance is reflected by new product success in the organization that leads to other types of performance such as marketing, production and financial performance

In other writing, Halim et al. (2014) argued that the concept of innovative performance is needed by the organization to reinforce new ideas, novelty, experimentation and creative processes that are expected to lead to the creation of new products, services or technological processes and the pursuit of solutions that are creative and new. In other study, Comlek et al. (2012) focused to definition of innovative performance that the company results in light of the level to which it launched new products/services, devices or process systems in the market. They explained that innovative performance can be gauged through several criteria namely new product/service amount to provide first service/product to the market, product/service speed of introduction to the market, newly patented product amount or process amount to be recreated (Comlek et al., 2012). Also, innovative performance can be defined as the overall performance that contributes products and process innovation to the economic performance of the firm (Meeus & Oerlemans, 2000). It's an assessment that reflected through the R&D phases of the firm that generates copyrights and the launching of new products, the copyrights scales, copyrights testimonies, and advertising (Meeus & Oerlemans, 2000).

According to Ferraris, Santoro and Dezi (2017), innovative performance is an introduction of new or significantly improved products or services and processes of producing products /services, also it includes the reduction of innovation risks and how to the reduction of new product/process development cost. Gunday et al. (2011) refers innovative performance as an integration of the overall organizational achievements that stems from its renewal and improvements efforts in different innovative aspects of firm namely; processes, products, structure. Hence, innovative performance is a composite that is based on different performance indicators that are related to new patents, new product launch, new projects, new processes and new structure of the firm. Otherwise, Zhang et al. (2014) described innovative performance as the level of impact of future innovations that can be gauged through the citations of patents, whereas Jiang and Li (2009) defined innovative performance as that which encapsulates the critical domains of the competitive advantage of the firm and contributes to product and process innovations. In other words, according to them, the innovative performance of the firm is reflected through its innovation activities (e.g. R&D expenditure, patents and novel products). While, Sa'ari, Manaf, Baba and Adenan (2014) focused to its definition of innovative performance as innovative behaviour and the ability to generate, introduce and apply new processes, products and services or improve administration processes to increase performance and enhance work efficiency.

Innovative performance is seen in the literature as one of the most important drivers of other aspects of organizational performance thanks to the formation of an organizational learning climate and/or orientation with continuous efforts for

improvements, renewals, exploration, and learning from failures and adaptation to rapidly changing competitive environment (Gunday et al., 2011).

Along with the above definitions, authors who dedicated their works to the topic provided some measures in employing innovative performance to indicate patents (e.g. Jiang & Li, 2009; Campanella et al., 2014; Zhang et al., 2014; and Chen et al., 2011). Similarly, Ahuja and Katila (2001) also considered innovative performance as the number of patent applications, granted patents of the firm that are successful in a year.

This study adopts the innovative performance definition from previous study by Gunday et al. (2011) that defines it as an integration of the overall organizational achievements that stems from its renewal and improvements efforts in different innovative aspects of firm namely; processes, products and structure. This definition of Gunday et al. (2011) is more comprehensive definition for all aspects of achievements related to firm from development and renewal of the product and processes which are considered.

2.2.1 Dimensions of Innovative Performance

The above provided definitions reveals that innovative performance is the outcomes of firms to introduce product innovation and process innovation that leads to new products and services, and the renewal of goods and services quality. The concept may be categorized into product innovation and process innovation (Fernandez-Mesa & Alegre, 2015; Lokshin, Van Gils, A & Bauer, 2009; Madhoushi et al., 2011; Neely

& Hii, 1998; Riani, 2013; Sanz-Valle, Naranjo-Valencia, Jimenez-Jimenez & Perez-Caballero, 2011). While product innovation is described as the new or enhanced product, equipment or service that is successfully introduced to the market, process innovation is the adoption of new or enhanced manufacturing/distribution process or a novel social service method. However, this does not indicate that the two are exclusive of each other; for instance, process innovation may result in product innovation and vice versa (Neely & Hii, 1998).

Other scholars categorized innovative performance to radical innovation and incremental innovation that are operationalized on the basis of the percentage of existing/new products, services and processes changes, adaptations and refinements (Agostini, Nosella & Filippini, 2017; De Leeuw, Lokshin & Duysters, 2014; Delgado, 2011; Lokshin et al., 2009; Moon, 2014; Sanal et al., 2013; Subramaniam & Youndt, 2005). In this categorization, De Leeuw et al. (2014) stated that radical innovations refer to new products, services or processes whereas incremental innovations refer to the refinements and adaptations of existing products, services or processes via according to existing technological knowledge.

Contrastingly, some authors refused to classify innovation performance into categories and opted instead to adopt a uni-dimensional term to gauge innovative performance consisting of items created to present the level of product innovation, process innovation, radical innovation and incremental innovation (e.g. Alpkan et al., 2010; Bulut & Yilmaz, 2008; Ferraris et al., 2017; Halim et al., 2014; Han & Li, 2015; Khalili et al., 2013; Liu, 2013; Meeus & Oerlemans, 2000; Zerenler et al., 2008).

For this study, uni-dimensional concept of innovative performance is adopted. It is based on the previous studies (Alpkan et al., 2010; Bulut & Yilmaz, 2008; Ferraris et al., 2017; Gunday et al., 2011; Hagedoorn & Cloudt, 2003; Halim et al., 2014; Han & Li, 2015; Khalili et al., 2013; Liu, 2013; Meeus & Oerlemans, 2000; Zerenler et al., 2008) which is the combination of overall results of product/process innovation and radical and incremental innovation and it is more suitable for setting of this study.

2.2.2 Previous studies on Innovative Performance

Innovative performance relationships with different factors in the organization have been individually examined by authors, where some viewed it through the knowledge perspective (e.g. Madhoushi et al., 2011; Jantunen, 2005; Moon, 2014; Gloet & Terziovski, 2004; Vinding, 2006); while the process of knowledge and its capabilities (e.g. Caloghirou et al., 2004); internal and external sources of knowledge (e.g. Serrano-Bedia et al., 2012; Ferraris et al., 2017); and personal competencies (Sa'ari et al., 2014) that positively affected innovative performance. There also were studies that focused on the technological aspects (e.g. Serrano-Bedi et al., 2012; Sanal et al., 2013; Ahuja & Katila, 2001; Zhang et al., 2014; Chen et al., 2011) and the impact of knowledge network in terms of its absorptive strength (e.g. Boschma & TerWal, 2007), as well as the role of R&D and patents on the innovative performance of the firm (Jiang & Li, 2009).

However, there are limited studies that examine the intellectual capital and innovative performance (e.g. Agostini et al., 2017; Beyene, Shi & Wu, 2016; Campanella et al., 2014; Han & Li, 2015; Wu et al., 2008); organizational learning and innovative

performance (e.g. Comlek et al., 2012; Wang & Ellinger, 2011; Fernandez-Mesa & Alegre, 2015). The intellectual capital and organizational learning are a critical factors for SMEs that linked to innovative performance, specifically to launching of new products and new production methods that eventually leads to enhanced economy. Organizations following an entrepreneurial orientation have a tendency to be more capable of bring about innovative performance (Wu et al., 2008; Fernandez-Mesa & Alegre, 2015).

Some of the reviewed prior studies of innovative performance are presented in Table 2.1. From this table, the researcher noted that there were studies that related to innovative performance relationships with different organization factors have been investigated individually. Studies on intellectual capital and organizational learning have been neglected. Few studies also, confined their examination to intellectual capital (e.g. Agostini et al., 2017; Beyene, Shi & Wu, 2016; Campanella et al., 2014; Han & Li, 2015; Wu et al., 2008; Wu et al., 2007), while others to organizational learning (e.g. Comlek et al., 2012; Fernandez-Mesa & Alegre, 2015; Wang & Ellinger, 2011). Therefore, owing to the inconsistent findings of the studies in literature, more in-depth studies are called for to identify the context within which innovative performance may be more advantageous.

Table 2.1
Summary of past studies

No.	Author	Variables	Country	Industry	Method Theory	Major Findings	Future Research
1	Meeus and Oerlemans (2000)	Firm behaviour and innovative performance	Netherlands	Industrial firms	OLS regression analyses	Positive and partly negative	N/A
2	Ahuja and Katila (2001)	Technological acquisitions and innovative performance	U.S.A	The chemicals industry	Regression analysis	Negative	The development of a schema to measure the various dimensions of non-technological acquisitions and relating them to different types of firm outcomes would be another fruitful direction of further research.
3	Caloghirou, Kastelli and Tsakanikas (2004)	Internal capabilities and external knowledge sources: complements or substitutes for innovative performance	(Greece, Italy, Denmark, UK, France, Germany and the Netherlands)	Manufacture of food products, beverages, chemical products, radio, television and communication, Telecommunication services, Computer and related activities.	Regression analysis. Simple Ordinary Least Squares (OLS)	Positive	N/A
4	Gloet and Terziovski (2004)	The relationship between knowledge management practices and innovation performance	Australia and New Zealand	Manufacturing companies across a large range of industries in both the private and public sector	Regression analysis	Positive and partly negative	N/A
5	Subramaniam and Youndt (2005)	Intellectual capital and innovative capabilities	U.S.A	Public, single business- unit organizations with more than 100 employees	LISREL Regression analyses	Positive	Need to provide a structure for future research probing of more specific questions regarding the knowledge-innovation link.

6	Vera and Crossan (2005)	Improvisation and innovative performance	Canada	Work teams in city	Regression analysis	Positive	Need to encourage researchers to shift the discussion from "idealizing" the role of improvisation in firms, or "warning" about its dangers, to the detection of factors associated with its effectiveness.
7	Jantunen (2005)	Knowledge-processing capabilities and innovative performance	Finland	Firms from seven different industrial categories	Hierarchical linear regression analysis	Positive	N/A
8	Vinding (2006)	Absorptive capacity, dependency of external knowledge and innovative performance	Denmark	The manufacturing and service sector	Probit regression	Positive	Further research is necessary in order to specify in more detail, how the absorptive capacity of the firm affects the outcome in terms of innovative performance.
9	Boschma and TerWal (2007)	Knowledge Networks and innovative performance	Italy	Industrial District: (The Case of a Footwear District)	- Kruskal–Wallis non-parametric test -Non-parametric correlation coefficient Kendall tau-b	Positive	N/A
10	Wu, Chang and Chen (2008)	The mediating effect of intellectual capital and the moderating effects of social capital and entrepreneurial orientation on innovation	Taiwan	Manufacturing firms and non-manufacturing firms	Regression analysis and hierarchical regression	Positive	Future research can highlight the influence of external social capital on intellectual capital. It would be valuable for future studies to concentrate on a comparison of research constructs between specific industries. In terms of international companies, the future research can switch attention on intellectual capital and social capital among organizational members who have diverse culture or nationality.

11	Zerenler, Hasiloglu and Sezgin (2008)	Intellectual capital and innovation performance . The growth rate of the industry as moderating variable.	Turkey	Automotive supplier companies	Regression analysis	Positive	N/A
12	Bulut and Yilmaz (2008)	Innovative Performance Impacts of Corporate Entrepreneurship	Turkey	312 different firms	Regression analysis	Positive	N/A
13	Chen and Huang (2009)	Strategic human resource practices and innovation performance . The mediating role of knowledge management capacity	Taiwan	150 firms in each of the five 1000 levels	Regression analysis	Positive	Future research can do the empirical work in different cultural contexts to generalize or modify the concepts.
14	Lokshin, Van Gils and Bauer (2009)	Firm competencies and innovation performance . The mediating effect of organizational competencies on firm innovative performance	Germany	the fast-moving consumer goods (FMCG) industry	Regression analysis	Positive	Combining variables pertaining to customer, technological and organizational uncertainties are useful in extending the academic understanding in this area.
15	Jiang and Li (2009)	knowledge management and innovative performance : The case of alliances	Germany	Partnering firms.	SEM	Positive	The findings will also hold when applied to firms originating from different countries, the relatively small size of the sample is still a problem. The next step will be to introduce a cross-cultural dimension in the context and to cross-validate the model in different settings based on a large-sized sample analysis
16	Alpkan, Bulut, Gunday, Ulusoy and Kilic (2010)	Organizational support, human capital and innovative performance . Human	Turkey	The individual manufacturing firm	Regression analysis	Positive	Need to enlarge the model with some control variables, e.g. firm size and age, and other similar organizational drivers of innovativeness, e.g. social and

		capital as moderating variable.					organizational capital.
17	Chen, Chen and Vanhaverbeke (2011)	The scope, depth, and orientation of external technology sources, and the innovative performance	China	High-tech industry firms	Regression analysis	Positive and partly negative	Need to apply the finding of this study in other context.
18	Albors-Garrigos and Barrera (2011)	Public funding policies and R&D, innovation performance . Internal innovation structure and cooperative behavior as moderating variable.	Spain	Low tech and high-tech sectors.	Simple Ordinary Least Squares (OLS)	Positive	Further research should look into the innovative outcomes of both samples in greater detail in order to draw more exhaustive conclusions and identify which elements in a firm's innovative behaviour and its sourcing and cooperative approach have a higher weight in the mediating effect.
19	Delgado (2011)	Intellectual capital and the radicalness of innovation The moderating effects of human capital on the relation between relational capital and radical innovation .	Spain	High and medium-high technology manufacturing firms with fifty or more employees	Regression analysis	Positive	N/A
20	Madhoushi, Sadati, Delavari, Mehdivand and Mihandost (2011)	Entrepreneurial orientation and innovation performance : the mediating role of knowledge management	Iran	SMEs	LISREL 8.5	Positive	Future longitudinal studies might assess EO outcomes in the long term in both KM and innovation performance

21	Wang and Ellinger (2011)	External environment, organizational learning and innovative performance .	Taiwan	High technology firms	Regressions with hierarchical method	Positive	Future research may involve team or group-level participants and investigate their innovation performance since there is an increasing interest in understanding organizational learning processes at the group-level, especially virtual teams
22	González-Loureiro and Dorrego (2012)	Intellectual capital and innovative SMEs	Spain	SMEs	SEM	Positive	Some new challenges should be addressed in future research from the SME perspective, such as the institutions are not still playing a key role in the innovative SMEs' growth.
23	Comlek, Kitapçı, Çelik, and Özşahin, M. (2012)	The effects of organizational learning capacity on firm innovative performance	Turkey	Metal industry	Regression analyses	Positive	N/A
24	Serrano-Bedia, Concepción López-Fernández and García-Piqueres (2012)	Complementarity between innovation activities and innovation performance	Spain	Manufacturing and service industries	Regression analysis	Positive and partly negative	Need to continue the study presented here by analyzing the determinants of firm selection of one innovation strategy over another.
25	Khalili, Nejadhussein and Fazel (2013)	Entrepreneurial orientation and innovative performance	Iran	Petrochemical industry	SEM Pearson coefficient correlation	Positive	Need for doing the same research with considering several factors as mediators such as industry, organization size, organization types
26	Jian and Wang (2013)	The impacts of network competence, knowledge sharing on service innovation performance : Moderating role of relationship quality	China	High-tech firms	Regression analysis	Positive	Future work should consider factors that might influence knowledge and technology integration strategies for facilitating service innovation in different industries, such as quality management, human resources management, technology management, financial management, and so on. Developing and testing more comprehensive models of service innovation is a potentially fruitful avenue for future research.

27	Sanal, Alpan, Aren, Sezen and Ayden (2013)	Market orientation and ambidexterity to financial returns with the mediation of innovative performance	Turkey	Manufacturing sector and service industry	SEM and regression. Partially mediated path model	Positive	Longitudinal research on multiple respondents and objectively measured multiple aspects of firm performance may be utilized. Moderators and other dependent variables such as market dynamism and learning and entrepreneurial orientations may be added to the model.
28	Riani (2013)	Entrepreneurial orientation, market orientation, knowledge management and innovative performance	Indonesia	Batik industry	SEM	Positive	Future research that is to multiply the sample above the 200 respondents or even more, so that the expected outcomes could be optimized and can reveal the reality according to the real conditions
29	De Leeuw, Lokshin and Duysters (2014)	Alliance portfolio diversity (APD) and innovation performance	Netherland	Innovating firms from wide range of industries s	Tobit regressions	Positive and partly negative	N/A
30	Zhang, Jiang and Cantwell (2014)	Subsidiary exploration and the innovative performance	U.S.A	Electrical equipment industry	Poisson and negative binomial analyses	Negative	The study used total knowledge outflows from a subsidiary or an MNC to measure innovative performance. It would be interesting if future studies can differentiate internal and external influences of a subsidiary and an MNC by separating internal and external knowledge outflows.
31	Moon (2014)	The external source of knowledge and innovative performance	South Korea	Service industries	Tobit regressions	Positive	The way of using external knowledge in service sector may change after mobile technology has been diffused among firms is an interesting future research topic.
32	Campanella, Rosaria Della Peruta and Del Giudice (2014)	Innovative performance of science parks and intellectual capital	European Union (EU) countries	Public and private organizations	Regression analysis	Positive and partly negative	There is a need to enlarge the sample investigated to embrace science parks outside the EU, so as to provide further validation to the empirical results of this research

33	Halim, Ahmad, Ramayah, Hanifah, (2014)	Innovative performance and organizational culture. Innovative human capital as mediating variable.	Malaysia	SMEs	SEM	Positive	N/A
34	Sa'ari, Manaf, Baba and Adenan (2014)	The influence of personal competencies in innovative performance	Malaysia	Academic Libraries	Qualitative interview method	Positive	Future research in the non- profit and the private sectors is recommended. In addition, the next studies should compare public and private sector organizations with similar personal competencies to determine if there are differences in innovative performance.
35	Al-Nuiami, Idris and Moh'd AL-Ferokh (2014)	The moderator effect of entrepreneurial orientation on the relationship between environmental turbulence and innovation performance	Jordan	Five-star Hotels	Regression analysis and SEM	Positive	N/A
36	Han and Li (2015)	Intellectual capital and innovative performance ; the mediating and moderating role of knowledge-based dynamic capability	China	Firms have (100 or fewer employees)	Regression analysis	Positive partly mediate	The effect of knowledge-based dynamic capability, with many other context variables such as culture, environmental uncertainty and industrial growth are not examined.
37	Ferna´ndez-Mesa and Alegre (2015)	Entrepreneurial orientation, organizational learning capability and export intensity of SMEs. Innovation performance as mediating variable.	Spain and Italy	SMEs of Ceramic tile industry	SEM	Positive	Future research might examine the role of these concepts organizational issues related to organizational learning and innovation, such as adaptive and generative learning or human resources interventions on the EO–export intensity relationship. Framework could be enriched by including the concept of dynamic capabilities.

38	Seyqalan and Chamanzamin (2015)	Relationship between human resource empowerment and innovative performance	Iran	Vocational Education in Guilan Province	Regression Analysis	Positive	N/A
39	Beyene, Shi and Wu (2016)	Impact of innovation strategy on organizational learning and product innovation performance	Ethiopia	Textile and leather product manufacturing firms Small and large firms	SEM	Positive	First it considers the technology push and market pull innovation strategies as separate constructs without giving space for the possibility of coexistence. Secondly, the survey data considers only the middle and top management members of each firm and since product innovation performance needs total effort and commitment of organizational members, input from employees might be required in future works.
40	Ferraris, Santoro and Dezi (2017)	External sources, knowledge management capabilities and Innovative Performance	European Countries	MNC subsidiaries in manufacturing industries	Regression Analysis	Positive	Future research may be oriented to better capture these external and internal characteristics of subsidiary's innovation in order to give more detailed results and precise portrait of innovation and KM at the subsidiary's level.
41	Agostini , Nosella and Filippini (2017)	Intellectual capital and Innovation Performance	Italy	SMEs in manufacturing medium-high tech industries	The Cluster Analysis	Positive	Future studies could investigate these relationships more specifically, also shedding more light on the possible cause-effect relationship among the different components of IC, which still represent a debated issue.

2.3 Concept of Intellectual Capital

Intellectual capital is a driver of both innovation and competitive advantage in the current economy characterized as knowledge-based (Marr, Gupta, Pike & Roos, 2003). Intellectual capital constitutes a valuable asset for organizations in their innovation activities. Without availability of ideas, talents, projects and employees' and managers' knowledge base, it is meaningless to talk about innovativeness (Gunday, Ulusoy, Kilic & Alpan, 2008).

According to Riahi-Belkaoui (2003), intellectual capital is primarily a vital strategic asset as intangible assets are mostly strategic ones. Intellectual capital is a term that was first introduced by John Kenneth Galbraith in 1969. The inceptor was convinced that intellectual capital is more than intellect but rather a degree of intellectual action in that it is a dynamic intangible asset and an ideological process; a means to an end (Bontis, 1998).

Several definitions of intellectual capital can be found in the literature. To begin with, Zerenler et al. (2008) built his definition of intellectual capital based on Stewart's (1997) definition, where the latter defined it as the total stocks of different types of intangible assets, knowledge, capabilities, and relationships at the employee level and organizational level that can be categorized into human capital, structural capital and relational capital. Bontis (1996) described intellectual capital as the difference between a firm's market value and the cost of assets replacement – it is something without price tag (e.g. expertise, knowledge and organizational learning ability).

On the other hand, Daou, Karuranga and Su (2013) described intellectual capital in light of human, organizational and relational capital and stated that it has become a major driver of successful small businesses. Moreover, intellectual capital was described by Wu et al. (2008) as the intangible assets that the firm has and it comprises of human capital, customer capital and structural capital. Another definition came from Han and Li (2015) who defined it as the sum of all knowledge or intangible sets that the firm uses for superior performance and it comprises the human capital, structural capital and relational capital. Added to this, Campanella et al. (2014) defined it as knowledge that is valuable to the firm indicating that intellectual capital is produced by the management of knowledge, which refers to the sum of what is known by the employees. Similarly, Subramaniam and Youndt (2005) also stated that intellectual capital is the sum of the firm knowledge that is utilized to gain competitive advantage, and in this regard, it has three major aspects namely human, organizational and social capital.

Based on the above discussions, there is evident that intellectual capital is a term that is considered to be akin to an intangible asset such as knowledge. Based on Delgado's (2011) proposal, intellectual capital comprises of two-level construct, which is human capital (knowledge of employees) and structural capital (the structures that embodies, empowers and supports human capital). They proceeded to divide structural capital into organizational capital (knowledge through IT systems and processes) and customer capital (knowledge concerning firm-customer relationship). To this end, customer capital can be considered as a major portion of relational capital and thus, from the point of view of sociology, such relational capital covers the entire external relationships under social capital.

Organizations that sought to measure intellectual capital in their formulation of strategies generally have five major reasons to do so and they are; for the assessment of the execution of the strategy, for diversification and expansion decisions, for compensation, and for communicating measures to external stakeholders (Sharabati, Nour & Eddin, 2013).

In the present study, intellectual capital is defined based on the definition provided in literature that refers to the concept as the intangible assets that the firm has and it comprises of human capital, structural capital and customer capital (Wu et al., 2008). This definition covers all main dimensions of intellectual capital; human capital, structural capital and customer capital.

2.3.1 Dimensions of Intellectual Capital

From different proposed perspectives to classification of the intellectual capital dimensions, a three-dimensional perspective that covers human capital, relational capital and structural capital are more acknowledged by researchers (e.g. Campanella et al., 2014; Díaz-Fernández, González-Rodríguez & Simonetti, 2015; Gonzalez-Loureiro & Dorrego, 2012; Han & Li, 2015; Sharabati et al., 2013; Sharabati, Naji Jawad & Bontis, 2010; Zerenler et al., 2008). Aside from the above dimensions, others include innovation capital, organizational capital, process capital, social capital and customer capital, of intellectual capital were mentioned by prior studies (Agostini et al., 2017; Bontis, 1998; Cabello-Medina, Carmona-Lavado, Perez-Luno & Cuevas-Rodriguez, 2011; Chen, Zhu & Xie, 2004; Daou et al., 2013; Delgado, 2011; El

Telbani, 2013; Leitner, 2015; Manzaneque, Ramírez & Diéguez-Soto, 2017; Subramaniam & Youndt, 2005; Wu et al., 2008; Zerenler et al., 2008).

The present study adopts a three-dimensional concept of intellectual capital which includes human, structural and customer capital dimensions on the basis of prior studies contentions. The other dimensions (organizational capital, relational capital and social capital) are covered to intellectual capital through these three dimensions. For example, structural capital covers organizational capital, while customer capital covers relational capital and social capital.

a. Human Capital

Human capital consists of tacit knowledge possessed by the individual, in case of an organization, in the employees' mind. It is the basis of the innovation, strategic firm renewal and the realization and reaction of value in the knowledge-based economy. Human capital is defined as the overall competence, attitude and creativity of the employee (Chen et al., 2004).

Human capital is also described as the sum of the individual knowledge, skills and the abilities of the employees of the organization – it comprises the required knowledge for quality individual, entrepreneurial and innovative efforts (Alpkan et al., 2010). In other writing, Halim et al. (2014) described it as encapsulating knowledge, skills, innovativeness and ability for task performance. Generally speaking, human capital can be expounded based on three dimensions, which are knowledge, abilities and behaviors. Knowledge is the employees' knowledge concerning how they should

perform their tasks in an effective and efficient manner while abilities are the know-how and the manner of performing tasks (e.g. individual learning, communication, leadership and collaboration, team work) and behavior is the knowledge concerning the sources that assist individuals perform their work. In addition, human capital is related to organizational learning through the set of knowledge, skills and abilities that the employees possess (Halim et al., 2014; Halim, Ahmad, Taghizadeh, Ramayah & Mohamad, 2015; Manzaneque et al., 2017).

On the other hand, human capital according to Han and Li (2015) is the knowledge, experience, professional skills and abilities that reside in and used by the executive teams and staffs of the firm. It engulfs the total skills and capabilities of the employees working in the firm (Wu et al., 2008). Similarly, Díaz-Fernández et al. (2015) indicated that human capital, which includes knowledge, professional skills and experience, expertise, educational level, and creativity of employees.

On the other hand, employee capital was used by Zerenler et al. (2008) in lieu of human capital and referred to it as the source of organizational culture as well as innovation. Human capital development is brought about by obtaining the employees' ideas and their feedback on how business can be developed. In this regard, the human capital can be enlisted and considered as the corporate capability of the firm as the firm benefits from the knowledge of its workers.

Moreover, human capital was also defined as the set of values, attitudes and aptitudes of the firm workers that eventually provides the firm with competitive advantage and value (Daou et al., 2013). The human capital importance cannot be overstressed as it

is evidenced to the top aspect of intellectual capital in that SMEs depend largely on it over the other types of capital as it directly affects the productivity of SMEs. In comparison to large-sized firms, SMEs size can be leveraged in light of human capital as it enables higher interactions, facilitates a more conducive environment and boosts workers' creativity and cooperation.

Author such as Delgado (2011) describe human capital as knowledge, abilities, experiences and behaviors integrated in the firm, that are needed to successfully develop new products/services, while, Chen et al. (2004) described human capital as the tacit knowledge possessed by the employees and they described it as a significant source of innovation, firm's strategic renewal and hence, it provides value in the current knowledge-based economy. Human capital can also be defined as the overall competence, attitude and creativity of the employees.

Finally, human capital was referred to by Chahal and Bakshi (2015) as the effective manner in which the firm makes use of its human resource experience, learning skills, education, competence and creativity to provide the firm with value. From the various factors, education has a key role in improving human capital competency and capability.

In the present study, human capital is defined as the sum of the individual knowledge, skills, abilities and experiences of the employees of the organization (Wu et al., 2008). This definition involves all main components of human capital; knowledge, skills, abilities and experiences.

b. Structural Capital

Structural capital consists of the firm's systems and structure in the form of business routines. Organization that has a robust structural capital is able to facilitate positive environment wherein human capital is used to the fullest potential to create innovation capital and customer capital. According to Chen et al. (2004), structural capital can be categorized into company culture, organizational structure, operational process, information system and organizational learning.

Structural capital was defined by Bontis (1996) as the organizational capabilities of the firm to satisfy the requirements in the market and it comprises the routines and structures of the firm that reinforces the employees' attempts to use their intellectual capital and enhance the performance of the firm.

In relation to this, an effective structural capital is capable of transforming the human dimension of innovation into the firm's property via the use of suitable managerial leadership. It is important for firms to support and assist employees to employ their innovation, knowledge and abilities in organizational learning. According to Delgado (2011), structural capital is the embodiment, empowerment and supportive infrastructure that hold the human capital within it. He added that structural capital can be divided into organizational capital (knowledge that kept within the IT systems and process of the firm), and customer capital (the firm-customer relationship).

Moreover, structural capital is the worth and value developed in the firm that the employees take with them when they leave (Gonzalez-Loureiro & Dorrego, 2012) and

as such, a high level of formalization is required to steer clear of depending on individuals that will eventually leave the organization. The term organizational capital was interchangeably employed by Subramaniam and Youndt (2005) with structural capital, and defined as the institutionalized knowledge and codified experience that are kept within databases, patents, manuals, structures, systems and processes.

Thinking along the similar line, Daou et al. (2013) considered organizational capital akin to structural capital, something that remains in the firm even when the employees leave and this covers the firm's core values that are transformed into strategies and structures and facilitate knowledge diffusion that ultimately improves the efficiency and performance of the firm.

Added to the above, structure capital provides a level by which knowledge and skills are made in the form of employee and institutional capital that forms the memory of the firm (Zerenler et al., 2008). Each firm possesses its own distinct structural capital with the anchored elements of it combining to form the structural capital (hardware, software, database, organizational structure, patents, and trademarks).

Meanwhile, Chen et al. (2004) described structural capital as the system and structure of the firm that forms the business routines and in this regard, a firm having a robust structural capital is capable of creating positive conditions wherein which human capital can be employed to the fullest, where innovation capital and customer capital can be boosted. Structural capital, according to the authors comprises company culture, organizational structure, organizational learning, operational process and information system.

Wu et al. (2008) revealed that structural capital covers all non-human storages of knowledge in firms and these include databases, organizational charts, process manuals, strategies, routines, and anything that is valuable to the firm.

Lastly, Han and Li (2015) stated that structural capital is the organizational processes and information systems that assist firms in coordinating its strategy, structure, culture, routine and enhance its operating efficiency while at the same time advanced technology facilitate information gathering to help in making decisions – all these result in enhanced efficiency and profitability of the enterprise.

In this study, structural capital is defined as all non-human storehouses of knowledge in organizations, including databases, organizational charts, process manuals, strategies, routines and anything that the firm perceives to be of higher value compared to its material value (Wu et al., 2008). This definition involves all main components of structural capital; databases, organizational charts, process manuals, strategies and routines.

c. Customer Capital

Customer capital is an important dimension of intellectual capital, which is the value stored in the marketing connections and relationships that an enterprise creates through business (Chen et al., 2004). In comparison with human capital and structural capital, customer capital directly impacts the achievement of firm value, and it is now becoming an important element. Customer capital is divided into fundamental

marketing capability, intensity of the market and the loyalty of customers (Chen et al., 2004).

In literature, different definitions were provided for the concept of customer capital; for instance, Wu et al. (2008) defined customer capital as these intangibles include the knowledge embedded in customers, suppliers, the government or related industry associations.

In Zerenler et al. (2008), the authors defined customer capital as stocks of connections, interactions, relations, linkages, proximity, goodwill and loyalty between a firm and customers, suppliers, clients, strategic partners and other stakeholders (Zerenler et al., 2008). In this background, through customer capital, the firm is capable of taking information regarding innovation from the suppliers, clients, partners and other stakeholders to improve its innovation performance.

However, some authors did not acknowledge that categorization of resources into relational capital against customer capital (e.g. Bontis, 1996; Han & Li, 2015; Daou et al., 2013; Delgado (2011). More specifically, Bontis (1998) employed the term customer capital in lieu of relational capital to represent the firm's potential to obtain intangibles that are knowledge possessed by customers, suppliers, government and the industry entities (Bontis, 1998).

Along a similar line of contention, Subramaniam and Youndt (2005) used social capital as opposed to customer capital and defined it to comprise of individual network, with each having an option to quit the organization but such individual

mobility rarely destroys the overall network's viability because social capital arises from norms of collaboration, interaction and ideas sharing.

Lastly, Chen et al. (2004) described customer capital as a bridge and a catalyst on the operations of intellectual capital is the main requirement and determinant in converting intellectual capital into market value and thereupon organization business performance. Without customer capital, market value or organizational performance cannot be achieved. Customer capital is most directly related to a company's business performance. The cultivation of customer capital relies on the support from human capital, structural capital and innovation capital.

In the present study, customer capital is defined customer capital as these intangibles include the knowledge embedded in customers, suppliers, the government or related industry associations. (Wu et al., 2008). This definition encloses all main components of customer capital; customers, suppliers and partners / allies.

2.3.2 Previous studies on Intellectual Capital

Gonzalez-Loureiro and Dorrego (2012) defined intellectual capital as the input to innovation, with the latter resulting from the utilization of knowledge and intellectual capital, and the process of innovation referring to knowledge management process. Stated clearly, innovation reflects the way to produce firm value and as such, it appears that firms with higher strategic focus on innovation tend to have greater ratios of value creation. Also, Han and Li (2015) claimed that firms having the same

intellectual capital levels may not obtain equal benefits as they are different in how they sense, seize and reconfigure intellectual capital.

Alpkan et al. (2010) examined the direct and interactive impacts of organizational support and human capital on the firm's innovative performance. Human capital was found to moderate the relationship between organizational support and innovative performance. Their study sample comprised of 184 Turkish manufacturing firms and they found human capital to be a significant driver of innovative performance particularly, with limited support from the organization. Nevertheless, when human capital and organizational support levels continue to increase, innovative performance does not.

Added to this, the influence of organizational culture on innovative performance among Malaysian SMEs was investigated by Halim et al. (2014) by using innovative human capital. Their sample comprised of SME entrepreneurs gathered through purposive sampling. Their findings showed that human resources needed to be maximized and this is possible if organizational culture supporting innovation is enhanced.

Moreover, Han and Li (2015) examined the relationship between intellectual capital and innovative performance and specified the boundary limitations and mechanisms that surround the relationship from the perspective of knowledge-based dynamic capability. Their sample consisted of 217 Chinese firms and their findings revealed that intellectual capital had a positive impact on innovative performance, with

knowledge-based dynamic capability mediating as opposed to moderating such relationship.

The concept of innovative performance for science parks was addressed by Campanella et al. (2014) as a framework that explains the effectiveness of human and structural capital (intellectual capital). The study sample was 901 organizations in 21 European nations (both public and private). They found that the appropriation of public resources had no influence on majority of the chosen performance indicators, except the negative effects for some patents. The venture capitalists provided resources positively impacted the entire performance indicators. The authors reached to the conclusion that science parks having greater dimensions displayed higher performances, and that systematic relationships positively impacted the increase in the number of contracts in the industry. They also found that the number of publications generated by researchers concerning the science parks appear to have mixed impacts on innovative performance. Finally, they also found that an increased number of researchers contribute to improved performance of the parks.

More on the mediating impact of intellectual capital and the moderating impacts of social capital and entrepreneurial orientation on innovation, Wu et al. (2008) gathered a sample of 159 manufacturing and non-manufacturing firms in Taiwan. The authors revealed no differences of intellectual capital and entrepreneurial orientation between the two groups of industries. They also found entrepreneurial orientation had a tendency to significantly impact intellectual capital (i.e. human capital, customer capital and structural capital) and that intellectual capital improved the innovation level of the firm.

In the context of Turkey, Zerenler et al. (2008) looked into the effect of intellectual capital of automotive supplier industry on innovation performance. The findings revealed three categories of intellectual capital namely employee capital, structural capital and customer capital significantly and positively related to innovative performance. They also revealed that the growth of the industry is directly related to the positive relationships between the three intellectual capital types and innovation performance. Aside from these findings, they also showed that customer capital was the top intellectual capital in Turkish automotive supplier industry, followed by employee capital and lastly structural capital.

In the case of Mexico, Daou et al. (2013) investigated intellectual capital among SMEs and its connection to competitive advantage from the point of view of resource-based and dynamic capabilities theories (RBV and DCV). They found SMEs need to adapt to achieve and maintain their competitive advantage in a dynamic environment. The authors employed a qualitative method to provide an insight into the context and permits by interviewing 24 managers/owners of Mexican SMEs from various economic sectors. Their findings showed that SMEs that possessed dynamic capabilities established processes to adapt to change, enabling them to address their opportunities and threats. Additionally, they were also inclined to take risks compared to their less dynamic counterparts who were slow to seize opportunities to translate them into competitive advantages.

In a study of the same calibre, Subramaniam and Youndt (2005) studied the way intellectual capital dimensions influenced different organizational innovative

capabilities. Their sample comprised of 93 public-single business-unit firms with over 100 workers in U.S. Their findings showed that human, organizational and social capital and their interconnections affected incremental and radical innovative capabilities. They expected organizational capital to positively influence incremental innovative capability, and human capital to interact with social capital to positively influence radical innovative capability – their findings was just as expected. Nevertheless, human capital on its own had a negative relationship with radical innovative capability whereas social capital had a significant role in both innovation types, and a positive one on incremental and radical innovative capabilities.

Meanwhile, Gonzalez-Loureiro and Dorrego (2012) proposed a model to measure and assess the effect of the three components of the intellectual capital (IC) at the same time in the background of SMEs management of innovation growth. In the first part of the research, the model was examined using a sample of innovative 140 Spanish SMEs, with the performance construct measured as the cumulative growth in a three year period. The findings revealed that human capital is the fundamental, initial point for the growth in SMEs, seemingly not directly related to growth except through structural capital and relational capital to a small extent. Therefore, the key appears to lie on the capability of the SMEs to transform knowledge from human capital into firm value, namely structural capital.

A model was also proposed by Delgado (2011) concerning the radical innovation in the intellectual capita-based view. He gathered a sample of 251 Spanish technology-based manufacturing companies, and specifically, he examined the way human, organizational, technological, relational and social capitals affect incremental and

radical innovations. They revealed that a higher positive influence of human capital exists on radical innovations more than on incremental innovations – this is the other way around in organizational, technological, relational and social capitals. The results also showed the importance of human capital when a firm is desirous to bring about radical innovation through external relationships considering the moderating effect of human capital on the relational capital-radical innovations relationship.

Furthermore, the relationship between the intellectual capital in the three dimensions (human, structural and customer) and innovation in Jawwal Company was explored by El-Telbani (2013). He revealed that the company focuses on the entire intellectual capital components mentioned and it is successful in doing so. He also revealed that the three intellectual capital components positively and significantly related with the company's innovation, with the top influential component being structural capital indicating its importance in regards to the innovative performance of the firm.

Another contributing study was conducted by Chahal and Bakshi (2015) who examined the effect of intellectual capital on competitive advantage of the banking sector in India and the innovation mediating role, and organizational learning moderating role on the relationship between intellectual capital and competitive advantage. They used a sample comprising of 144 branches of 21 public and 7 private banks in Northern India. Their findings showed that intellectual capital directly and positively affected competitive advantage, and that innovation had a full mediation on the intellectual capital-competitive advantage relationship.

Lastly, Manzaneque et al. (2017) investigated the role of intellectual capital (human and structural capital) on technological innovation. Their sample comprised of 5,304 Spanish firms for the period 2000–2013. Their findings showed that intellectual capital efficiency has a positive and significant relationship between the two variables. They also revealed that structural capital positively and significantly related with the technological innovation, while human capital positively but not significantly. While Agostini et al. (2017) examined the relationship between the strength of intellectual capital and innovation performance in SMEs. They used a sample composing of 150 SMEs from manufacturing medium-high tech industries. The results showed that a higher strength of IC, in terms of human capital, innovation capital and relational capital, exhibit a significantly higher radical and incremental innovation performance.

Despite the wealth of studies that were carried out concerning the relationship between intellectual capital and innovative performance, the findings they reported were inconsistent. Some studies that reported a positive and significant relationship between the two variables (e.g. Agostini et al., 2017; Alpkan et al., 2010; Chahal & Bakshi, 2015; El-Telbani, 2013; Gonzalez-Loureiro & Dorrego, 2012; Halim et al., 2014; Han & Li, 2015; Wu et al., 2008) revealed that intellectual capital can help the innovativeness of SMEs in processing, creating and launching new products and technologies, and producing optimum performance. On the other hand, Campanella et al. (2014) revealed that the public resources allocation, as an intellectual dimension, negatively affects specific indicators of innovative performance, while Subramaniam and Youndt (2005) revealed that human capital negatively related to the strength of

radical innovation and similarly, Manzaneque et al. (2017) showed that human capital positively but not significantly related to technological innovation.

2.4 Concept of Organizational Learning

Several definitions have been put forward in the literature concerning organizational learning. For example, Spicer and Sadler-Smith (2006, p.135) defined organizational learning as “the development or acquisition of new knowledge or skills in response to internal or external stimuli that leads to a more or less permanent change in collective behaviour and enhances organizational efficiency and / or effectiveness”. Comlek et al. (2012) regards organizational learning as a conscious or unconscious process of influencing organizational activity through knowledge acquisition, knowledge reaching and knowledge evaluation the assistance of the memory of the organization.

Based on the perspective of management, Lopez, Peon and Ordas (2006) referred to organizational learning as a process of creation, acquisition, and integration of knowledge that is a dynamic one and whose objective is to develop the resources and capabilities of the firm for enhanced performance. They categorized organizational learning into four processes namely knowledge acquisition, knowledge distribution, knowledge interpretation and organizational memory. Along a similar line of definition, Zhou et al. (2015) revealed that organizational learning will not be successful unless organizations follow distinct steps and take part in extensively distributed activities that includes the production, gathering, interpretation and dissemination of knowledge.

Added to the above definitions, Dada and Fogg (2014) defined organizational learning as the development or acquisition of knowledge/skills in response to an internal/external driver that eventually results in a permanent change in the overall behavior of the firm workers, and it improves the firm in terms of its efficiency and effectiveness. According to Wang and Ellinger (2011) defined organizational learning as a process that involves acquisition, distribution and dissemination of information, collective interpretation, and organizational memory among employees in the organization. On a similar description, Sanz-Valle et al. (2011) referred the organizational learning as the development, acquisition, transformation and use of new knowledge to improve innovation.

Also, organizational learning is the capability of the organization to maintain or enhance its performance through its experience (Garcia-Morales, Jimenez-Barrionuevo & Gutierrez-Gutierrez, 2012) in an activity that entails that acquisition, sharing and use of knowledge. However, the authors (Garcia-Morales et al., 2012) made use of a uni-dimensional scale for its measurement.

The present study defines organizational learning as a process that involves acquisition, distribution and dissemination of information, collective interpretation, and organizational memory among employees in the organization (Wang & Ellinger, 2011). This definition covers all main dimensions of organizational learning which includes both adoption of behavior change and creation of knowledge at multiple levels within an organization and is most suitable definition for SMEs' learning context (Wang & Ellinger, 2011; Wang, 2008; Huber, 1991).

2.4.1 Dimensions of Organizational Learning

Organizational learning consists of sub-processes comprising four dimensions namely information acquisition, information distribution, information interpretation and organization memory (Wang & Ellinger, 2011; Wang, 2008).

More specifically, Wang and Ellinger (2011) and Beyene et al. (2016) made use of information acquisition in lieu of knowledge acquisition in the same context of meaning. This may be clarified by comparing information and knowledge. Information refers to the raw material, while knowledge is the end product (Bontis, 1998). In this study, each term is used in an interchangeable manner. In the present study adopts four dimensional construct of organizational learning basis on assumptions on learning and individual-level learning to achieve organizational-level learning, which is most suitable for SMEs' learning context (Wang & Ellinger, 2011; Wang, 2008; Huber, 1991).

a. Information Acquisition

Information acquisition is the process by which knowledge is obtained (Huber, 1991). According to Dada and Fogg (2014) that information is acquired when the firm access and internalizes pre-existing knowledge from the external environment and this often happens when knowledge-based resources are obtained from external resources like collaborative partners that eventually lead to increased knowledge stock and value. In the context of SMEs, external sources for new knowledge production are needed to

balance out the scarce resources that could prevent the development of the enterprise (Dada & Fogg, 2014).

In addition, Kreiser (2011) stated that acquisitive learning takes place after the firm acquires pre-existing knowledge that can be found from its external boundaries, where before the acquisition of knowledge-based resources, the firm has to leverage the resources. On another take on the acquisitive knowledge, Sanz-Valle et al. (2011) stated that its consolidation with R&D policy entails the experimentation on new ideas and new work approaches in a continuous manner with the support of systems and procedures.

In the viewpoint of knowledge management, knowledge acquisition was defined by Lin and Lee (2005) as the business processes using existing knowledge and capturing new knowledge. In this regard, both administrator and technical innovations call for intensive effort and experience in order to recognize, acquire and use knowledge and integrate it as a part of culture.

Moreover, information acquisition was used interchangeable with knowledge acquisition by Wang and Ellinger (2011) as mentioned before. The difference between information and knowledge being that the former is the raw material while the latter is the end product (Bontis, 1998). Knowledge acquisition was categorized by Lopez et al. (2006) into external and internal knowledge acquisition owing to their distinctive features. It is possible to acquire knowledge from other's experience or directly. In the former, common practices like benchmarking, networking, strategic alliances and customer relations are entailed (Lopez et al., 2006).

Along a similar line of study, knowledge acquisition was also categorized by Santos-Vijande et al. (2012) into market knowledge acquisition and internal knowledge acquisition, with the former being the extent to which firms gather information from customers, following their rivals' behavior and analyze the trends in the market place and the latter being the exploitation of invaluable information possessed by employees as a guidance towards organizational management, market intelligence and learning.

This study defines information acquisition as the ability of the firm to innovate, and to continuously improve through the acquisition and use of knowledge and make them both a part of the learning culture (Wang & Ellinger, 2011).

b. Information Distribution

Following information acquisition is information distribution where the practices and activities are contributed by organizational members through individual-level and organizational-level (Wang & Ellinger, 2011). According to Huber (1991) information distribution is the process by which information from different sources is shared and thereby leads to new information or understanding.

Knowledge distribution is the spread of knowledge among organizational members that arises through the connections, roles integrations, and face-to-face contact during meetings, or through the use of information technology for the formation of the organization's common board (Lopez et al., 2006).

Previous studies referred to knowledge distribution and collective interpretation as a shared vision (Salim and Sulaiman, 2011; Santos-Vijande et al., 2012; Su, 2013; Real, Roldan and Leal, 2014; Beyene et al, 2016). This indicates that all the departments working in groups share information on a daily basis. Relevant information distribution that occurs rapidly depends on the members and the operations of the company (Santos-Vijande et al., 2012). Shared vision dimension allows the firm to acknowledge suitable targets expediently in the dynamic environment, and steer clear of missing opportunities in the market that could easily lead to challenges in developing core competencies (Su, 2013).

With regards to information distribution, Comlek et al. (2012) defined it as the level of access to knowledge in the organization and accessing it from different sources could easily facilitate learning within the organization. Knowledge dissemination is among the basic activities that make knowledge an organizational value.

This study defines information distribution to the spread of knowledge among the members of the organization to assist transference through individual organizational level of learning (Wang & Ellinger, 2011).

c. Information Interpretation

According to Huber (1991) that information interpretation is the process by which distributed information is given one or more commonly understood interpretations. The interpretation of information is what comes after its distribution in the process of

organizational learning. Such interpretation refers to the sharing and incorporation of knowledge aspects that are not common to all to achieve a common understanding and coordinated decision-making (Lopez et al., 2006).

Shared vision was used by some studies (i.e., Salim & Sulaiman, 2011; Santos-Vijande et al., 2012; Su, 2013; Real et al., 2014; Beyene et al., 2016) interchangeably with information interpretation as mentioned earlier. Information interpretation according to Wang and Ellinger (2011) is the organization's sharing of its aims, knowledge and experience to the committed employees and the development of internal rotation programs to bring about employee shift from one department to the next while providing learning opportunities. In this case, learning refers to a process of changing and adapting the cognitions of the employee by developing shared beliefs and interpretations throughout the members of the organization (Wang, 2008).

The definition of information interpretation in this study is adapted from literature that it is the sharing of the organization of its aims, knowledge and experience to its committed employees and the development of internal rotation programs for employee shifting from one department to the next while providing learning opportunities (Wang & Ellinger, 2011).

d. Organizational Memory

In organizational learning process, the component of organization memory can be categorized into two namely storing and retrieving information, and computer-based organizational memory. This organizational memory according to the resource-based

view is a type of intangible asset that the members of the organization can use if need be (e.g. knowledge) (Wang, 2008).

According to Huber (1991) organizational learning is the means by which knowledge is stored for future use. Organizational memory is the storage for knowledge that may be needed in the future either through the systems of the organization or in the form of rules, procedures and systems (Lopez et al, 2006). It is important for enterprises to own and use updated databases to keep abreast of the current knowledge and experience (Michna, 2009).

Added to the above, according to Wang and Ellinger (2011) that organizational memory comprises of databases that store experiences and knowledge for later use. The definition of organizational memory used in this study is adopted from literature – it is referred to as knowledge storage for future use in databases, or systems designed for storage, or in the form of rules, procedures or other systems for later use (Wang & Ellinger, 2011).

2.4.2 Previous studies on Organizational Learning

According to Jones and Macpherson (2006), Small and Medium Enterprises (SMEs) generally lack organizational routines, systems for diagnoses, rules and procedures supporting the acquisition, dissemination and institutionalization of new knowledge. Therefore, the essence of organizational learning (OL) in the generation of knowledge in SMEs to creates innovation, and also maintains its competitive advantage. New

markets and creation of niches as knowledge in an organization is considered as an asset that can be manipulated to bring about innovation (Wang & Ellinger, 2011).

In this background, innovation focus's to a learning culture that nurtures and fosters organizational members. An innovation is crucial as it allows organizations to adapt to their dynamic environment by inquiring new knowledge. From the point of view of organizational learning, it is evident that innovation is precipitates creativity and supports inquiry, risk taking and experimentation that indirectly affected innovative performance (Halim et al., 2014).

In some studies, innovative performance is seen in the literature as one of the most important drivers of other aspects of organizational performance . The formation of an organizational learning climate and/or orientation with continuous need efforts for improvements, renewals, exploration, and learning from failures and adaptation to rapidly changing competitive environment (Gunday et al., 2011).

Also, the relationship between organizational learning and innovative performance was addressed (e.g., Comlek et al., 2012; Fernandez-Mesa & Alegre, 2015) and a significant relationship was supported. The information dissemination activities play a key role in the innovation performance of an organization (Wang & Ellinger, 2011).

More specifically, Comlek et al. (2012) investigated the impact of organizational learning capacity upon the innovative performance of the firm. They collected data from a sample of 199 middle and senior management who were employed in the Marmara Region of Turkey. Their findings showed two dimensions of organization

learning capacity namely system orientation and knowledge acquisition, and utilization orientation – both positively affected innovative performance. They also showed an insignificant effect of learning orientation and information sharing and dissemination orientation on innovative performance.

Meanwhile, Fernandez-Mesa and Alegre (2015) related that entrepreneurial orientation and export intensity by examining the relation between organizational learning and innovation in SMEs from Spain and Italy. They reported a positive relationship between innovative performance and intensity of exports, and a direct and significant impact of organizational learning upon export intensity. Also, they reported a positive relationship between entrepreneurial orientation and innovative performance as well as between entrepreneurial orientation and organizational learning. The model supported the direct effect of EO on SMEs export intensity but no significant effects were highlighted by the partial mediation model.

In a related study, Wang and Ellinger (2011) studied the perception of the external environment and its link to organizational learning, and they examined the relationship between the latter and innovative performance based on the individual and organizational level. Their sample comprised of 268 senior R&D project team members in Taiwan who perceived the external environment and organizational learning as well as 83 R&D managers who conducted an evaluation of the innovative behaviors of employees. According to the results obtained, the perception of external environment was an antecedent of organizational learning and the latter was significant in two levels of innovative performance.

Dada and Fogg (2014) argued that SMEs can support robust organizational learning and be more capable of acquiring knowledge when the tacit knowledge in their entrepreneurial orientation is integrated with explicit knowledge from interaction with other organizations. The study sample was formed by 206 U.K. SMEs. In other words, SMEs with higher innovation level have greater tendency of knowledge acquisition while at the same time, search for environmental opportunities.

Similarly, the effects of organizational learning on innovation and firms performance was examined by Zhou et al. (2015) among 287 Chinese listed firms. They revealed a positive relationship between organizational learning dimensions and performance (objective financial performance and perceptual innovation). They also reported that a combination of several learning features rather than a single one influenced the variance of the performance of firms. Their findings supported the premise that systemic interventions addressing various and different combinations of learning firm's characteristics are likely to be successful compared to interventions that just concentrate on one or limited dimensions.

Along the same line of study, Sanz-Valle et al. (2011) determined the effect of organizational learning on technical innovation as well as the role of organizational culture in determining processes of organizational learning. Their sample consisted of 451 Spanish firms with each firm having over 15 employees. Based on the study findings, organizational learning positively related to technical innovation, and organizational culture facilitates organizational learning and technical innovation, but in some cases it may prevent it. Finally, their findings revealed that for the

enhancement of innovation, it is not enough just to use flexibility focus or external focus.

Despite the importance of learning for the performance of the firm, Bapuji and Crossan (2004) indicated the ambiguity of the relationship boundary as to whether or not prior learning would be useful and for how long. They also urged investigations into the issues to improve the knowledge of learning-performance relationship. In the context of the organizational learning literature, current studies examined the moderating role of organizational learning in explaining organizational performance (Bapuji & Crossan, 2004).

Moreover, the influence of organizational learning, innovation and performance in KIBS was examined by Santos-Vijande et al. (2012). The study sample consisted of 264 knowledge intensive business services (KIBS) in Spain and the study results supported that organizational learning is crucial as an antecedent of innovativeness, while innovativeness plays a major role in the adoption of technical and administrative innovations with a higher level of incorporated novelty. The results also showed that organizational learning directly impacts administration innovation efforts despite the fact that contrary to prior studies, the innovativeness mediating role is needed for such efforts to influence technical innovation. Finally, the results supported the effect of organizational innovation on obtaining competitive advantage at the business level and in the new service performance.

Lastly, the impact of organizational learning on innovation in Jordan's technology sector was determined by Abo-Kashef (2013). They used common vision, open-

mindfulness, knowledge acquisition, knowledge sharing and knowledge use to represent organizational learning, and the dimensions of product innovation and process innovation. They revealed a significant effect of organizational learning dimensions of common visions, knowledge acquisition, knowledge sharing, and knowledge use upon both product innovation and process innovation – open mindedness was an exception as it showed no significant effect on innovation. Similarly, Beyene et al. (2016) investigated the extent of impact of innovation strategy on organizational learning and product innovation performance. They found positive relationship between organizational learning and innovation performance in a study involving 432 managers of textile and leather manufacturing small and large firms in Ethiopia.

From prior studies that reported a positive and significant relationship between the two variables organizational learning and innovative performance (e.g. Abo-Kashef, 2013; Beyene et al., 2016; Dada & Fogg, 2014; Fernandez-Mesa & Alegre, 2015; Salim & Sulaiman, 2011; Santos-Vijande et al., 2012; Wang & Ellinger, 2011; Zhou et al., 2015). Contrastingly, Comlek et al. (2012) and Abo-Kashef (2013) revealed positive impacts as parts of OL dimensions on innovative performance and insignificant.

2.5 Concept of Entrepreneurial Orientation

In order to maintain innovation and success in markets, it is important for firms to have assets, processes and structures that contribute to its flexibility and opportunities for sensing and acquiring (Jantunen, 2005). Entrepreneurial orientation was defined

by Lumpkin and Dess (1996) as the processes, practices and activities of decision making that facilitates new entry. It is a process of entrepreneurship that is known and accepted for its five dimensions namely innovativeness, riskiness, proactiveness, aggressive competitiveness and autonomy. According to Wiklund and Shepherd (2003) that entrepreneurial orientation involves a willingness to innovate, search for risks, take self-directed actions, and be more proactive and aggressive than other competitors towards new marketplace opportunities.

Along a similar line of contention, Madhoushi et al. (2011) described entrepreneurial orientation as the processes, practices, philosophy and activities of decision-making that results in innovation within organizations. Other studies (Khalili et al., 2013; Lumpkin & Dess, 1996; Madhoushi et al., 2011; Riani, 2013) referred to the EO dimensions as innovativeness, riskiness, proactiveness, aggressive competitiveness and autonomy.

Added to the above definitions, Shehu and Mahmood's (2014) definition of EO is the inclination to take part in innovative, risky and uncertain market activities and discovering new opportunities prior to the rival's discovery. In other studies (Kreiser, Louis, Marino & Weaver, 2002; Piirala, 2012; Shehu & Mahmood, 2014; Soininen et al., 2012), the three dimensional definition of EO were adopted as represented by innovativeness, riskiness and proactiveness. The overall measures of EO had its basis on the notion that all the above three sub-dimensions contribute equally to the firm's overall entrepreneurial orientation in different circumstances (Kreiser et al., 2002).

Moreover, Avlonitis and Salavou (2007) and Antoncic and Hisrich (2001) claimed that the EO variable represents the behavior of management of adopting strategic decisions and operating management philosophies that are encapsulated within two dimensions, which are proactiveness and risk-taking. The EO profiles of SMEs are determined to show the differences in product innovativeness as a distinct variable.

In a related current study, Fernandez-Mesa and Alegre (2015) described EO as the attitude of management and it has three major dimensions namely, the inclusion of radical innovation, competitive orientation, and aggressive or proactive risky decisions. Also, the concept of EO was operationalized by Covin (1991) as strategic posture perspective as according to them, firms with conservative strategic postures have aversion to risk, are non-innovative and they are reactive. On the other hand, firms with entrepreneurial strategic postures are just the opposite meaning to say that they are risk-takers, innovative and proactive. In this entrepreneurial firms are distinct from their conservative counterparts in light of their rate of growth and financial, operating and marketing constructs (Covin, 1991; Covin, Green & Slevin, 2006).

The present study defines entrepreneurial orientation as the willingness of the firm towards adopting innovative activities and taking risks to come up with new products/services and to introduce new markets, and proactively make a move prior to its competitors in availing of new opportunities in the market (Soininen et al., 2012). This definition covers all dimensions of entrepreneurial orientation that are generally highly intercorrelated with each other, which drives to combining these dimensions into one single concept (Soininen et al., 2012).

2.5.1 Dimensions of Entrepreneurial Orientation

Empirical studies in literature often investigate the dimensions in a unit, with approximately three out of four studies employing a uni-dimensional method indicating a strong convergence among studies (Wales, Gupta & Mousa, 2013a). The dimensions of innovativeness, risk-taking and pro-activeness were the most integrated dimensions to create a uni-dimensional EO conceptualization constituting around 80% of the total uni-dimensional articles (Wales et al., 2013a) (e.g., Avlonitis & Salavou, 2007; Covin & Slevin, 1989; Covin et al., 2006; Covin, 1991; Dada & Fogg, 2014; Fernandez-Mesa & Alegre, 2015; Kreiser et al., 2002; Kreiser, 2011; Shehu & Mahmood, 2014; Soininen, Puumalainen, Sjögrén, Syrjä & Richter, 2015; Wiklund & Shepherd, 2003; Wu et al., 2008). The dimensions of entrepreneurial orientation are generally highly inter-correlated with each other, which drives to combining these dimensions into one single concept (Soininen et al., 2012).

Literature on innovativeness, risk-taking and pro-activeness shows correlation levels ranging from moderate to high in practice (Covin et al., 2006). In actuality, empirical research often examines the dimensions together, with approximately three out of four employing a uni-dimensional method – this indicates a strong ambiguity in literature (Wales et al., 2013a). The three dimensions of innovativeness, risk-taking and proactiveness were the most combined to develop a uni-dimensional EO concept. Around 80% of the overall uni-dimensional articles are used (Wales et al., 2013a) (e.g. Avlonitis & Salavou, 2007; Covin & Slevin, 1989; Covin et al., 2006; Covin, 1991; Dada & Fogg, 2014; Fernandez-Mesa & Alegre, 2015; Kreiser et al., 2002;

Kreiser, 2011; Shehu & Mahmood, 2014; Soininen et al., 2015; Wiklund & Shepherd, 2003; Wu et al., 2008).

In the present study, uni- dimensional concept of entrepreneurial orientation is adopted on the basis of the prior studies contention.

a. Innovativeness

Innovativeness is a crucial element of entrepreneurship and is defined by Khalili et al. (2013) as the degree of newness relative to the firm and to the world. In Riani's (2013) study, he referred to innovativeness as the willingness of the firm to support creativity and experimentation in launching new product/service, and R&D in new process development.

Also, in another study, Soininen et al. (2012) stated that innovativeness is a reflection of the firm's inclination to take part in and support novel ideas, experimentation, and creativity in processes that may lead to the development of new products, services or technological methods. It is the fundamental inclination to deviate from the present technologies/practices to go beyond the current circumstances (Lumpkin & Dess, 1996).

Furthermore, innovativeness is a crucial variable as in the current markets, there is a trend of increasing and rapid pace, and sustaining competitive advantage in this situation is very important. Innovativeness is the key to such sustainable competitive

advantage as it is the basis of significant firm progress and development (Piirala, 2012).

b. Pro-activeness

Pro-activeness refers to the importance of the company's general activeness and activeness in seeking ways to determine suitable opportunities more than its rivals (Khalili et al., 2013). Similarly, Riani (2013) stressed on the relationship of the company to the market opportunities and its initiative to capture such opportunities. In a related study, Rauch, Wiklund, Lumpkin and Frese (2009) referred to proactiveness as the opportunity-seeking, forward-looking premise that is related to the introduction of new products/services prior to rivals and acting in preparation for the long-term demand.

Moreover, pro-activeness may be important to EO as it indicates a forward-looking point of view that is coupled by innovative and venture-seeking activity (Lumpkin & Dess, 1996). This indicates that pro-activeness can be a major driver of competitive advantage as competitors have to react to the successful initiatives of the first mover. The latter may succeed in attracting and maintaining customers owing to high-switching costs (Piirala, 2012).

c. Riskiness

In the realm of entrepreneurship, risk is a mandatory element in the process of decision making – this holds true for entrepreneurs who are attempting to start a new

business venture, or search for a new market, or launch a new product (Khalili et al., 2013). In this regard, Lumpkin and Dess (1996) stated that firms are often faced with three kinds of risks namely business risk, financial risk and personal risk.

On the other hand, Riani (2013) described risk as the inclination of the firms to identify business development in new markets, where it uses majority of its resources with the certainty that business will eventually develop. Risk taking, according to Rauch et al. (2009) entails adopting aggressive actions by entering the unknown, heavily taking loans, and/or committing major resource to businesses in environments that are risky.

Along a similar line of description of risk, Lumpkin and Dess (1996) defined risk-taking as the level to which managers are inclined to invest risky resource commitments that have a reasonable chance of failing. In other words, firms that are entrepreneurially oriented are often characterized as risk-takers (e.g. incurring heavy debt, making significant resource commitments) in order to eventually acquire high returns through their capture of market opportunities.

2.5.2 Previous studies on Entrepreneurial Orientation

Several scholars have examined the entrepreneurial orientation-firm performance relationship with some recent ones including Shehu and Mahmood (2014), Soininen et al. (2012), Piirala (2012), Avolonitis and Salavou (2007), Lumpkin and Dess (1996). Some of these studies attempted to investigate the direct and indirect relationship between entrepreneurial orientation and innovative performance (e.g.,

Fernandez-Mesa and Alegre, 2015; Khalili et al., 2013; Madhoushi et al., 2011; Riani, 2013).

Moreover, the influence of entrepreneurial orientation on innovative performance was examined by Khalili et al. (2013) in the context of Iran's petrochemical firms and reported that three out of five entrepreneurial orientation dimensions positively affected innovative performance. Specifically, the results showed that entrepreneurial orientation dimensions affected innovative performance with the exception of proactiveness and competitive aggressiveness.

In a related study, Riani (2013) looked into the relationship between EO, marketing orientation, knowledge management and innovative performance in the Indonesian Batik industry and found that entrepreneurial orientation positively affected innovation performance. Also, the relationship between entrepreneurial orientation, knowledge management and innovative performance of SMEs in Iran were examined by Madhoushi et al. (2011) that were situations in the industrial zone. The findings showed that entrepreneurial orientation directly and indirectly positively affected innovation performance through knowledge management.

In a study of the same calibre, Fernandez-Mesa and Alegre (2015) examined the interconnection between organizational learning and innovation in the context of SMEs in Spain and Italy and found a positive relationship between innovation performance and export intensity, as well as a direct and significant impact of organizational learning on export intensity of SMEs. They also found a positive connection between entrepreneurial orientation and innovation performance and

entrepreneurial orientation and organizational learning. Lastly, they found entrepreneurial orientation to directly affect SMEs export intensity based on the direct model that diminishes to no significance in the partial mediation model.

2.5.3 Entrepreneurial Orientation as Moderating Variable

A significant number of studies have been carried out dedicated to the relationship between entrepreneurial orientation and innovative performance, where majority of them reported a positive and significant relationship between them (e.g., Khalili et al., 2013; Madhoushi, 2011; Riani, 2013). According to Wiklund and Shepherd (2003), entrepreneurial orientation contributes to the process of SMEs innovation, creation and introduction of new products and technologies, and generation of enhanced performance.

Additionally, entrepreneurial orientation's moderating effect has also been examined with cultural diversity in terms of management and firm performance (e.g., Richard et al., 2004). In a study of Al-Nuiami et al. (2014) found that entrepreneurial orientation is moderate in the relationship between environmental turbulence and innovation performance in five-star hotels in Jordan. In another study, the moderating effects of entrepreneurial orientation and social capital were examined by Wu et al. (2008) on innovation, and the same moderating role was investigated by Wales et al. (2013b) on absorptive capacity and firm performance relationship. They revealed that firms having proactive strategic orientation were more responsive to externally obtained knowledge, and those with higher entrepreneurial orientation levels enhance their performance via their intensified efforts towards using information. Lastly, Li et al.

(2008) found entrepreneurial orientation and its dimensions moderate between market orientation and performance among 213 small firms in China.

In relation to the above, a moderator is a qualitative or quantitative variable that impacts the direction or strength or both of the relationship between an independent and dependent variable (Baron & Kenny, 1986). In terms of a correlational analysis framework, a moderator is considered as a third variable affecting the zero-order correlation between the other two variables (Baron & Kenny, 1986). In Hayes's (2013) study, he referred to a moderator as interaction wherein the relationship between two variables are deemed to be moderated (through size/sign) depending on a third variable/set of variables.

Moreover, other studies (Covin & Slevin, 1991; Wales et al., 2013a) explained that two factors are significant as moderating variables – 1) entrepreneurial orientation may be necessary but not sufficient, criterion for optimum results and 2) without a suitable context, entrepreneurial orientation may be a considerable strategic plan as it calls for a significant resource investment for its development and maintenance.

Despite the attempts of some studies, entrepreneurial orientation has not been examined in literature as moderating variable of innovative performance. The study proposes that by examining entrepreneurial orientation relationship with intellectual capital and organizational learning, the moderating effects on innovative performance is highlighted. More specifically, the study posits that entrepreneurial orientation can enhance the relationship between intellectual capital, organizational learning and innovative performance. The direct relationship between the variables also requires

further confirmation. This is supported by Wales et al. (2013a) who stated that some of the constructs that facilitate or prevent the entrepreneurial orientation application remain under explored in light of its moderating effects. Also, according to Han and Li (2015) that intellectual capital alone is not enough to gain innovative performance, but needs to be leveraged through the transformational capabilities to convert resources into outputs.

Added to the above, further research concerning entrepreneurial orientation was called for by Sanal et al. (2013) who specified its integration to a model comprising market orientation and ambidexterity to innovative performance. A similar suggestion was made by Khalili et al. (2013) who stressed on the need for studies to examine the entrepreneurial orientation–innovative performance relationship in the context of different industries, types and organizational sizes. In this regard, Serrano-Bedia et al. (2012) revealed that innovative performance appeared to be similar between industries. Lastly, Fernandez-Mesa and Alegre (2015) suggested for more empirical research to be done in various industries to examine the effect of entrepreneurial orientation on organizational learning and innovative performance.

Answering the call for more studies, the present one contributes to literature as it focuses on the moderating effect of entrepreneurial orientation on the intellectual capital, organizational learning and innovative performance relationship.

2.6 Conclusions and Research Issues to be Addressed

The above literature review indicates that studies on innovative performance are enormous but there are still areas that need attention and deeply explore. Most of the past studies on innovative performance have mainly focused on its impact on outcomes such internal and external sources of knowledge and its capabilities, while some studies focused on the technological perspective. Thus, to further reconfirm the importance of innovative performance as a critical determinant of organizational effectiveness, it is essential to test its effect on a broader range of outcome variables. In this study, the role of the intellectual capital and organizational learning are examine to see their effect on innovative performance.

With regards to factors that relating to innovative performance, some authors studied it through the knowledge perspective (Gloet & Terziovski, 2004; Jantunen, 2005; Madhoushi et al., 2011; Moon, 2014; Vinding, 2006), whereas some studies focused on the variables that specifically concerns the process of knowledge and its capabilities (Caloghirou et al., 2004), and internal and external sources of knowledge (Serrano-Bedia et al., 2012) that positively affected innovative performance. There were also studies that focused on the technological perspective (Ahuja & Katila, 2001; Chen et al., 2011; Sanal et al., 2013; Serrano-Bedi et al., 2012; Zhang et al., 2014) and the impact of knowledge network in terms of its absorptive strength (Boschma & TerWal, 2007), as well as the role of R&D and patents on the innovative performance of the firm (Jiang & Li, 2009).

However, reviewing the literature have shown that there are limited study that focus on intellectual capital (Campanella et al., 2014; Han & Li, 2015; Wu et al., 2008), and organizational learning (Comlek et al., 2012; Fernandez-Mesa & Alegre, 2015; Wang & Ellinger, 2011) as critical factors of firms that linked to innovative performance, specifically in launching of new products and new production methods that eventually leads to enhanced economy. Also, there were limited studies that focused on entrepreneurial orientation and innovative performance (Fernandez-Mesa & Alegre, 2015; Wu et al., 2008). If there were studies that focusing on critical factors with innovative performance, the studies were conducted on other setting such as in large companies, manufacturing, high-tech and electrical industries and services sectors rather than in the SMEs setting involving small and medium firms. Hence, this study aims to contribute to the body of knowledge on innovative performance by examining the relationship between intellectual capital, organizational learning and innovative performance. Also, the present study is attempts to examine the moderating effect of entrepreneurial orientation on the relationship between intellectual capital and innovative performance and between organizational learning and innovative performance among SMEs.

Reviewing the literature also has indicated that the moderating role of entrepreneurial orientation on the relationship between intellectual capital, organizational learning and innovative performance has received less attention from researchers. Therefore, this study intends to expand the knowledge on innovative performance of SMEs by examining the moderating role of entrepreneurial orientation on the relationship between intellectual capital and innovative performance and between organizational learning and innovative performance.

Lastly, the literature also revealed that most of the studies on innovative performance have been concentrated in the context of Western countries such as the US, European countries, and Australia. Conducting similar studies in other parts of the world is important due to the differences in national and organizational cultures, policies, work environment, and leadership styles that might lead to different conclusions. Therefore, this study is focusing on innovative performance issues among the SMEs in the Jordanian context.

2.7 Underpinning Theory

Four theories namely Resource-based View theory, Dynamic Capabilities theory, the Schumpeter theory and Contingency theory are used to explain the relationship between variables tested in this study. They are discussed in the following sub-sections.

2.7.1 Resource-based View Theory (RBV)

Resource-based View (RBV) theory which is proposed by Barney (1991) emphasizes on the importance of intangible resources to sustain competitiveness and relies on two central assertions: resource heterogeneity (e.g., resources and capabilities possessed by organization may differ) and resource immobility (resources differences may be long lasting). Thus, the central preposition of RBV is that rare, valuable, and inimitable resources may generate competitive advantage and can enhance rate of return. This explains the different in organizational performance.

Resources are given different categorization by so many researchers, some of it includes Mills, Platts and Bourne (2003): where they classified resources as follows: tangible resources, such as financial, organizational, physical and technological; Knowledge resource, such as skills and experience, system and procedural resources; Cultural values and resources; network: resources and potential dynamic capabilities; and Intangible resources, such as innovation, human resources and reputation. In same line, Fahy (2000) classified resources as: tangible, intangible and capabilities. The RBV has a focus on firm to develop and deploy its core resources for an effective and efficient result attainment. Therefore, resources are organizational input into a firm's production process to improve competitiveness and performance.

This study consider the RBV from the intangible point of view, the fundamental focus of intangibility is toward resources such as intellectual capitals , organizational learning, entrepreneurial orientation and innovation employed in order to have more innovative performance and a competitive advantage in the environment (Mills et al. 2003).

The theory also proposes that organization can sustain competitive advantage through the implementation of strategies exploiting their external strengths by leveraging the opportunities in the environment, eliminating external strengths and steering clear of internal weaknesses. These include assets, capabilities, processes, firm attributes, information and knowledge (Daou et al., 2013). It has been extensively advocated by RBV that there are several factors that can bar rivals from achieving the same level of competitive advantage and they include strategies of internal organizational,

regulations of human competitiveness, and availability of useful sources of information (Al-Swidi, 2012).

In this study, RBV is used to explain the variables tested in this study as also used to explain similar relationship in past studies (Al-Swidi, 2012; Dada & Fogg, 2014; Daou et al., 2013; Gunday et al., 2008; Han & Li, 2015; Jian & Wang, 2013; Kreiser, 2011; Luca, Maia, Cardoso, Vasconcelos & Cunha, 2014; Wang & Ellinger, 2011; Wu et al., 2008). As argued by Luca et al. (2014), the RBV provides a basic logical framework that explains the relationships between resources, capacities, competitive advantage and performance (Luca et al., 2014). Such resources can be considered as the indiscernible assets that creates intellectual capital (Daou et al., 2013). RBV considers intellectual capital as firm's strategic resource to obtain and maintain competitive advantage and form firm value that could lead to enhance firm performance (Clarke, Seng & Whiting, 2011). As argued by Han and Li (2015), intellectual capital is distinct from tangible resources like land, raw material or financial capital that can be acquired through purchasing and it can be referred to as a strategic resource and a one-of-a-kind knowledge system created in the operating processes that fulfil the criteria of VRIN to assist the firm in obtaining sustainable advantage (Han & Li, 2015).

In other study, Dada and Fogg (2014) argued that SMEs can support robust organizational learning and be more capable of acquiring knowledge when the tacit knowledge in their entrepreneurial orientation is integrated with explicit knowledge from interaction with other organizations. In other words, SMEs with higher innovation level have greater tendency of knowledge acquisition while at the same

time, search for environmental opportunities (Dada & Fogg, 2014). The RBV theory advocating acquisition, integration/exploitation of resources supported by entrepreneurial orientation make up the major elements that bring about maximized overall innovation of the firm (Kreiser, 2011).

RBVs also has entrepreneurial orientation as its core where suitable resources can be used to gain competitive advantage in the market and this ultimately depends on entrepreneurial orientation as innovation requires the combination of assets (Wu et al., 2008). As such, entrepreneurial orientation may bring about the ability of the firm to determine suitable resources to be combined and to use in innovation. It also represents the level to which a firm adopts product innovation and risky undertakings and is the first to bring about proactive innovations prior to competitors. Entrepreneurial orientation can also lead to enhanced relationship between knowledge-based resources and the performance of the firm (Wiklund & Shepherd, 2003).

2.7.2 Dynamics Capabilities Theory

Dynamic capability theory is extended from the resource based view (RBV) (Barney, 1991; Barreto, 2010). The RBV posits the conditions under which firms may maintain competitive advantage on the basis of its resources and capabilities (Barney, 1991; Barreto, 2010). The underlying premise of the extension is such that RBV falls short of explaining the reasons behind certain firms' competitive advantage in the face of dynamic and unpredictable changes (Eisenhardt & Martin, 2000). Such capabilities are aptly conceptualized as method used to manipulate resource basis that is

effectively used to improve the resource base and to reinforce the present RBV's position in terms of its path dependent strategic logic of leverage (Eisenhardt & Martin, 2000).

Dynamic Capabilities theory comprises certain strategic and organizational processes such as product development, alliances, and strategic decision making that provides the firm with value within dynamic markets through the manipulation of resources into value-creating strategies (Eisenhardt and Martin (2000). It precedes organizational and strategic routines where managers change their resource base, obtain and get rid of resources, combine resources and re-combine them to create new strategies providing value.

The firm's dynamic capability is its potential to solve problems in a systematic manner that is assisted by its willingness to be open to opportunities and to be aware of threats, to make decisions that are timely and market-orientated and to modify its resource base (Barreto, 2010).

In this background, firms having effective dynamic capabilities like superior product innovation and alliance processes are more likely to possess competitive advantage over their less-endowed counterparts (Eisenhardt & Martin, 2000). In relation to this, the firm's R&D capability can be considered as a resource that is valuable, rare, inimitable and non-substitutable and this can be the basis for an effective innovation performance (Rothaermel & Hess, 2007).

Lastly, the innovative performance of the firm partially contributes to the human capital value and as such, firms have to invest in the acquisition, retention, and training of its human resource (Rothaermel & Hess, 2007). The intellectual human capital role in the ability of the firm to develop novel capabilities can be understood by stressing on the tacit knowledge that stems from the skilled human capital's interactions. In other words, locally grown knowledge and skills comprising the human capital may be deemed as a distinct source of the firm's innovative capability (Rothaermel & Hess, 2007).

2.7.3 The Schumpeter Theory

According to Professor Schumpeter the causative factor in change is innovation that refers do things differently in daily economic life (Sweezy, 1943). This simply indicates that the cause of change is nothing but change and innovation is a function of a group of individuals referred to as entrepreneurs. An entrepreneur is described as a sociological kind of individual that can be separated and examined independent of the circumstances that comes after his actions.

In relation to the above, Mathews (2003) examined Schumpeter theory and contended that the source of dynamic change stems from the organizations internal development as well as entrepreneurship. He also argued that the economic development is produced internally through the actions of entrepreneurs. Sledzik (2013) argued that Schumpeter's theory is a historical process of structural changes, that is significantly brought about by innovation and is categorized by 1) the launching of new product/new species of an existing product; 2) application of novel production

methods or sales (not existing in the industry); 3) launching of a new market (for which an industry branch was inexistent); 4) acquisition of new sources of supply of raw materials or semi-finished products; and 5) new industry structure like the creation or the elimination of a monopolistic situation.

Entrepreneurial orientation is described as the firm's ability to continuously undergo renewal, innovation, and take risks in the markets, and operation areas with the objective of bringing about creative innovations into business (Khalili et al., 2013). Halim et al. (2014) argued that SMEs should have innovative human capital in order to achieve innovative performance. In other words, innovative human capital consists of human resources that have values and are distinct to the organization.

Based on the above discussion of Schumpeter theory and the study questions, it is evident that both are aligned to explaining the interactions between innovative performance and the moderating role of entrepreneurial orientation.

2.7.4 Contingency Theory

The contingency theory posits that there is no single organizational setting that may be highly effective for entire organizations. Also, there is no one ideal way in which to organize, and that any way is not equally effective to all situations, as the ideal way hinges on the related nature of the environment (Tidd, 2001). The contingency research attempts at determining the contingency factors that each distinct organizational structure aspect needs to match with.

The contingency theory shed light on how context influences innovation management (Tidd, 2001), with its central premise being that no single organizational structure is suitable for all situations. Tidd (2001) further explained that three contingencies seem to be related with organizational structure and they are size, technology and task uncertainty, while two contingencies relate significantly to organizational and management of innovation and they are uncertainty and complexity. Environmental uncertainty affects innovation in terms of its magnitude and nature. More specifically, environmental uncertainty perceptions seem to influence the innovation management and organization. Complexity is the second contingency and it is described as the number of technologies and their interconnections, and according to current studies, innovation of complex products/systems is basically distinct from those in other fields. In this regard, a network/connection has the potential to affect the members' actions through information flow and sharing through the network (Tidd, 2001). Environmental complexity and uncertainty influences the level, kind, organization and management of innovation, wherein a higher fit between the above factors could lead to an effective configuration and enhanced performance (Tidd, 2001).

In this study, the contingency theory is adopted as a supporting theory to examine the relationship among intellectual capital, organizational learning and innovative performance.

2.8 Research Framework

Figure 2.1 shows the research framework to be tested in this study. It is developed base on Resource based View (RBV) theory (Barney, 1991), Dynamic capabilities theory (Eisenhardt & Martin, 2000), Schumpeter theory (Sweezy, 1943), Contingency theory (Tidd, 2001) and the discussion of literature on innovative performance (Alpkan et al., 2010; Campanella et al., 2014; Comlek et al., 2012; Delgado, 2011; Fernandez-Mesa & Alegre, 2015; Han & Li, 2015; Halim et al., 2015; Halim et al., 2014; Khalili et al., 2013; Madhoushi et al., 2011; Riani, 2013; Subramaniam & Youndt, 2005; Wang & Ellinger, 2011; Wu et al., 2008; Zerenler, et al., 2008).

The research framework for this study shows the relationship between intellectual capital, organizational learning, entrepreneurial orientation and innovative performance. In this study, intellectual capital and organizational learning are the independent variables, while innovative performance is the dependent variable. This research framework also tested entrepreneurial orientation as the moderating variable in the relationship between intellectual capital and innovative performance and in the relationship between organizational learning and innovative performance.

For the independent variables, intellectual capital and organizational learning are chosen based on the Resource-based View (Barney, 1991). According to the theory, the heterogeneous resources are characterized as valuable, rare, inimitable and non-substitutable (VRIN) to obtain and maintain competitive advantage of firm that could lead to enhanced firm performance. Availability of ideas, talents, projects and employees' and managers' knowledge base by organizational learning (acquisition

and distribution new knowledge), it is necessary to achieving of innovative performance

From the perspective of Dynamic Capabilities theory (Eisenhardt & Martin, 2000), the innovative performance of the firm contributes to the human capital value and as such, firms have to invest in the acquisition, retention, and training of its human resource. The intellectual capital role in the ability of the firm to develop novel capabilities can be understood by stressing on the tacit knowledge that stems from interactions of the skilled human capital and learning. In other words, locally grown knowledge and skills comprising the human capital may be deemed as a distinct source of the firm's innovative capability (Rothaermel & Hess, 2007).

Even though in the literature (e.g., Han & Li, 2015) intellectual capital is referred to the sum of human capital, structural capital and relational capital, this study tested the realizing superior innovative performance is dependent on a firm's intellectual capital and its ability to sense opportunities and threats, to make timely and correct decisions, and to facilitate necessary changes efficiently. Organizations that have higher levels of intellectual capital (human capital, structural capital and customer capital) tend to amplify the effects of innovation (Alpkan et al., 2010; Campanella et al., 2014; Delgado, 2011; El Telbani, 2013; Subramaniam & Youndt, 2005; Wu et al., 2008; Zerenler et al., 2008).

On the other hand, organizational learning is referred to acquisition, distribution and dissemination of new information and knowledge among employees to develop the resources and capabilities of the firm for enhanced innovation. Findings from Wang

and Ellinger's (2011) study revealed that organizational learning is strongly to both individual and organization-level innovative performance and contributed more to the individual-level than organizational innovative performance. Hence, organizations that have higher levels of organizational learning (information acquisition, information distribution, information interpretation and organizational memory) tend to improve innovative performance positively.

In this study, entrepreneurial orientation is tested as the moderating variable in the relationship between intellectual capital and innovative performance and in the relationship between organizational learning and innovative performance. According to the Resource-based view theory, suitable resources should be determined to gain competitive advantage in the market and this ultimately depends on entrepreneurial orientation as innovation requires the combination of resources (intellectual capital and organizational learning) (Wu et al., 2008). As such, entrepreneurial orientation may help the organization to determine suitable resources to be used in innovation.

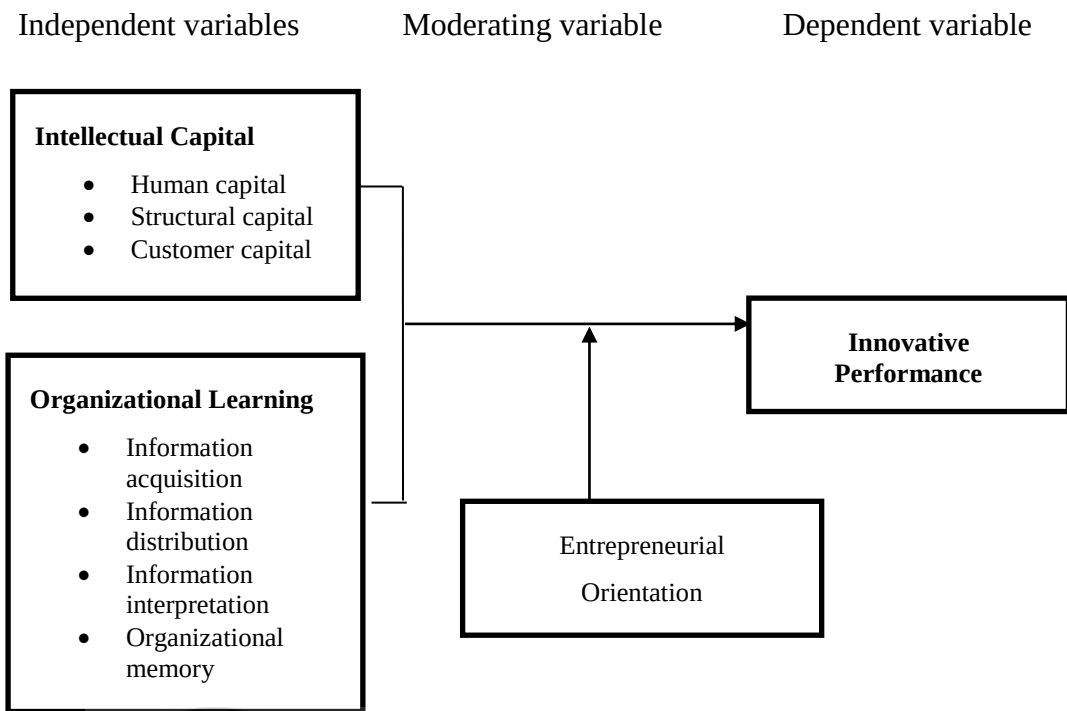


Figure 2.1. Research Framework

2.9 Development of Hypotheses

2.9.1 Relationship between Intellectual Capital and Innovative Performance

In the past, many studies have been conducted in attempt to understand the relationship between intellectual capital and innovative performance (Alpkan et al., 2010; Campanella et al., 2014; Chahal & Bakshi, 2015; Delgado, 2011; El Telbani, 2013; Halim et al., 2015; Han & Li, 2014; Subramaniam & Youndt, 2005; Wu et al., 2008; Zerenler et al., 2008). For example, Han and Li (2015) found positive relationship between intellectual capital and innovative performance when tested on 217 managers in Chinese firms. Similar findings were also found when intellectual

capital was tested against innovative performance in 901 public and private organizations from 21 European Union countries (Campanella et al., 2014).

In other study, Wu et al. (2008) found that all three intellectual capital's dimensions such as human capital, customer capital and structural capital were significantly positively related to innovative performance when tested on 159 manufacturing and non-manufacturing firms in Taiwan. Zereler et al. (2008) also found similar results when these three dimensions of intellectual capital were tested against innovative performance on 76 managers in the automotive suppliers firms in Turkey.

In a study involving 184 managers and owners of Turkish firms, Alpkhan et al. (2010) found that human capital was positively related to innovative performance. Human capital was also found to positively related to innovative performance when tested on 263 owners of SMEs in Peninsular Malaysia (Halim et al., 2015). Positive relationship was also found between human, structural and customer capital and innovation in a study involving 150 employees of Jawwal Company in Gaza (El-Telbani, 2013).

Based on the above discussion, the following research hypotheses are proposed:

H1a: There is positive relationship between human capital and innovative performance

H1b: There is positive relationship between structural capital and innovative performance

H1c: There is positive relationship between customer capital and innovative performance

2.9.2 Relationship between Organizational Learning and Innovative Performance

In the literature, studies on organizational learning and innovative performance have shown positive relationship (Beyene et al., 2016; Comlek et al., 2012; Fernandez-Mesa & Alegre, 2015; Salim & Sulaiman, 2011; Sanz-Valle et al., 2011; Wang & Ellinger, 2011). In a study involving 199 middle and senior managers from Marmara Region in Turkey, Comlek et al., (2012) found that organizational learning dimensions such as system orientation and knowledge acquisition-utilization orientation were significantly positively related to innovative performance.

Beyene et al. (2016) found positive relationship between organizational learning and innovation performance in a study involving 432 managers of textile and leather manufacturing small and large firms in Ethiopia. In other study, Salim and Sulaiman (2011) found organizational learning contributes positively to innovation, a study involves 320 SMEs in ICT industry in Malaysia.

Similarly, Wang and Ellinger (2011) found positive relationship between all dimensions of organizational learning (information acquisition, information distribution, information interpretation and organizational memory) and innovative performance when tested on 268 senior R & D project team members and 83 R & D managers of high technology firms in Taiwan.

Similar positive relationship were also found between organizational learning and innovative performance in a study involving 150 top managers of SMEs in Spain and

Italy (Fernandez-Mesa and Alegre, 2015) and among 451 CEOs in Spain's company (Sanz-Valle, et al., 2011).

Therefore, the following research hypothesis is proposed:

H2a: There is positive relationship between information acquisition and innovative performance

H2b: There is positive relationship between information distribution and innovative performance

H2c: There is positive relationship between information interpretation and innovative performance

H2d: There is positive relationship between organizational memory and innovative performance

2.9.3 Entrepreneurial Orientation as a Moderator in the Relationship between Intellectual Capital and Innovative Performance

Reviewing the literature has shown that there are lack of studies that testing entrepreneurial orientation as a moderator in a relationship between intellectual capital and innovative performance. If there were studies testing entrepreneurial orientation as a moderator, it was in a different context. For example, entrepreneurial orientation has been found to moderate the relationship between intellectual capital and innovation when tested on 159 manufacturing and non-manufacturing firms in Taiwan (Wu et al., 2008).). In a study of Al-Nuiami et al. (2014) found that entrepreneurial orientation is moderate in the relationship between environmental

turbulence and innovation performance when tested on 150 managers in 13 five-star hotels in Jordan.

Entrepreneurial orientation also has been found to moderate the relationship between absorptive capacity and firm performance in a study involving 285 SMEs' CEO in Sweden (Wales et al., 2013b). In other study, entrepreneurship orientation was found to moderate the relationship between cultural diversity and firm performance when tested on 535 senior human resource executives US (Richard et al., 2004).

Though there was limited study that focusing on the moderation effect of entrepreneurial orientation on intellectual capital and innovative performance, the Resource-based View theory (Barney, 1991) argued that having the appropriate resources are important to compete in the market and this is ultimately a matter of entrepreneurial orientation. As argued by Nahapiet and Ghoshal (1998), innovation is a process of combining assets and thus, entrepreneurial orientation may facilitate the company's ability to appropriately utilize resources and innovates. In other writing, Wiklund and Sheperd (2003) also suggested that entrepreneurial orientation can enhance the relationship between knowledge-based resources and firm performance. Thus, it is proposed that:

H3a: Entrepreneurial orientation moderates the relationship between human capital and innovative performance

H3b: Entrepreneurial orientation moderates the relationship between structural capital and innovative performance

H3c: Entrepreneurial orientation moderates the relationship between customer capital and innovative performance

2.9.4 Entrepreneurial Orientation as a Moderator in the Relationship between Organizational Learning and Innovative Performance

Reviewing the literature has shown that there was limited study that specifically tested entrepreneurial orientation as a moderator in the relationship between organizational learning and innovative performance. However, Dada and Fogg (2014) argued that company that has high level of innovation has greater tendency for knowledge acquisition and at the same time searching for new opportunity created by the entrepreneurial orientation. Therefore, the following hypotheses are proposed:

H4a: Entrepreneurial orientation moderates the relationship between information acquisitions and innovative performance

H4b: Entrepreneurial orientation moderates the relationship between information distribution and innovative performance

H4c: Entrepreneurial orientation moderates the relationship between information interpretation and innovative performance

H4d: Entrepreneurial orientation moderates the relationship between organizational memory and innovative performance.

2.10 Conclusion

This chapter has presented the discussion on past and existing empirical works on innovative performance, intellectual capital, organizational learning and

entrepreneurial orientation. Empirical studies on the moderating effect of entrepreneurial orientation were also addressed. The chapter has also presented the research framework and the research hypotheses tested in the study. The following chapter, Chapter 3, describes the method of the study.



CHAPTER THREE

METHOD

3.1 Introduction

Chapter three describes the method for the study. In this chapter, the research population and sample design, survey materials used in this study, and procedure for data collection are described. The chapter ends with strategies for analyzing the data.

3.2 Research Design

Quantitative research design was employed in this study as it allows the researcher to investigate the relationship between variables, can establish cause and effect in highly control situations and can test theories and hypotheses (Creswell, 2003; Saunders, Saunders, Lewis & Thornhill, 2009).

In this study, survey research method was used to collect data through self-administered questionnaire. Survey research was considered the most appropriate because it is a widely used method adopted by organizational researchers who are interested in collecting information about a very large population that cannot be observed directly (Keeter, 2005). Since the target population of the study was SMEs which are operating in Jordan, the unit of analysis in this study was at the organizational level (owner or manager of SMEs) and the primary data was collected through distribution of questionnaire. It was suitable to use organization as a unit of analysis to test all the variables proposed in the research framework as the study is

interested to investigate factors that might relate to organizational innovative performance.

This study is cross-sectional, where the data was collected at one point in time. As argued by Wilson (2010), cross-sectional design is not costly to perform and does not require lot of time.

3.3 Population and Sampling

3.3.1 Study Population

The total number of SMEs in Jordan is 43,091(Social Security Corporation, 2016). However, for practical reasons, only SMEs in Amman, Irbid and Zarqa were included in this study. These cities were chosen as they are among the cities that have the most SMEs in Jordan which constitute 86.6% of SMEs and over 80% of the employment in Jordan (Ministry of Planning and International Cooperation, 2011). Also, these cities (Amman, Irbid and Zarqa) are the most densely populated in terms of types of industries, where innovative activities are concentrated (Ministry of Industry, Trade & Supply, 2014b). In total, there are 34,696 SMEs in these three cities. From that list, SMEs were further selected based on their size and years of operation. For this study, only small and medium companies that have been in operation for more than 3 years were chosen.

Several studies have shown that size play an important role in determining whether innovative performance is adopted or not. For example, in a study conducted by Chen and Huang (2009) on 150 manufacturing in Taiwan, they found that size and age of

the company influenced innovative performance as different size and age exhibit different organizational characteristics and resource deployment. In other study involving 1194 high-tech industries in USA, Hagedoorn and Cloudt (2003) found that most of the new product were produced from small and intermediate size-class. Serrano-Bedia, et al. (2012) found that flexible structures of small firms have given them the advantages to be innovative when tested on 11,778 manufacturing and service industries in Spain. Therefore, another 23,469 were excluded from the list, and the total population for this study is 11,227. According to Social Security Corporation, (2016), these 11,227 SMEs in Amman, Zarqa and Irbid were found active and have been in the operation for more than 3 years (establishing year of these SMEs is from 1960 -2011). Previous studies have shown that SMEs age from 3 years and above were more able to introduce innovative performance (Al-Hyari et al., 2012; Wang & Ellinger, 2011; Madhoushi et al., 2011; Ismail, Omar, Soehod, Senin& Akhtar, 2013). Table 3.1 shows total number of SMEs in these three cities that had been in operation for more than 3 years.

Table 3.1
Number of SMEs in operation for more than 3 years in the three cities

Cities	Small (5-19)	Medium (20-99)	Total
Amman	6997	2497	9494
Irbid	746	177	923
Zarqa	619	191	810
Total	8362	2865	11227

Source: Social Security Corporation, (2016)

3.3.2 Sampling Size

Since it is not practical to collect data from the whole population, a sampling process needs to be done to determine the sampling size. Generally, sampling process involved three steps which are identifying the population, identifying sample size and choosing the sample. As mentioned earlier, the total population was 11,227. Based on the sample size table by Krejcie and Morgan (1970), the sample size for this study was 370. This means 370 SMEs were needed to represent the whole study population. This sample size fit with Roscoe's rule of thumb where a sample that is larger than 30 and less than 500 is appropriate for most research. However, the researcher distributed 600 questionnaires with the intention to receive higher response rate. As argued by Hair, Black, Babin, Anderson and Tatham (2006), a large sample size is needed to be able to generalize to the whole population.

3.3.3 Sampling Technique

For this study, all the 600 SMEs from these three cities are selected based on a systematic random sampling. Systemic random involved six steps (Gay & Diehl, 1996). First is to determine the population. In this study, the population is 11,227. Second, determine the desired sample size. The sample size for this study was 600. Third, obtain a list of the population. The list was obtained from the Social Security Corporation under study. Fourth, determine the K by dividing population by the desired sample size. In this study, K is equal to 19($11227 / 600 = 18.71$). Fifth, determine the total SMEs for each of the cities under study (refer Table 3.2). Sixth,

researcher picked a random number from the SMEs list as the starting number. Then every 19th name was automatically in the sample.

Before the distribution of the questionnaire, probability sampling was determined by following this formula:

Probability sampling of SMEs = $NP / T * NS$

(NP = Total number of SMEs in each city; T = Total number of SMEs in three cities;

NS = The number of sample to be distributed)

Table 3.2
Distribution of SMEs for each city

City	Total number of SMEs (N = 11227)	Total number of respondents (S = 600)	% of sampling	Systematic random
Amman	9494	508	84.6	19 th
Zarqa	810	43	7.2	19 th
Irbid	923	49	8.2	19 th
Total	11227	600	100	

3.4 Operational Definitions and Measurements

The measurements adopted in this study and their operational definitions are discussed in several subsections. The discussion begins with the dependent variable and this followed by the independent variables, and moderating variable.

3.4.1 Innovative Performance

In this study, innovative performance is the dependent variable. It is operationalized as the integration of the overall organizational achievements that stems from its renewal and improvements efforts in different innovative aspect of firm namely, processes, products, and structure (Gunday, et. al, 2011). Innovative performance is measured by seven items adopted from Gunday, et al (2011). Past studies have reported that the instrument has adequate internal consistency (the Cronbach alphas ranging from 0.81 to 0.83) (Gunday et al., 2011; Alpan et al., 2010; Hassan et al., 2013). The 7 items were rephrased by changing the wording of the original version to suit the agree-disagree response scales used for this study. The original and adapted versions of the 7 items are shown in Table 3.3.

Table 3.3
Original and adapted versions of innovative performance items

Original version	Adapted version
Percentage of new products in the existing product portfolio.	My company has high percentage of new products in the existing product portfolio
Number of new product and service projects.	My company has high number of new product / service projects.
Ability to introduce new products and services to the market before competitors.	My company has the ability to introduce new products / services to the market before competitors.
Innovations introduced for work processes and methods.	My company has introduced innovations for work processes and methods.
Quality of new products and services introduced.	My company has introduced quality in new products / services.
Number of innovations under intellectual property protection	My company has high number of innovations under intellectual property protection.
Renewing the administrative system and the mind set in line with firm's environment.	My company has renewing the administrative system and the mind-set that is in line with company's environment.

In this study, participants rated their degree of agreement with the innovative performance statements based on five-point scale whereby, 1 = strongly disagree, and 5 = strongly agree. Table 3.4 shows the innovative performance items used in this study.

Table 3.4
Innovative performance items

Variable	Operational definition	Items	Authors
Innovative performance	The integration of the overall organizational achievements that stems from its renewal and improvements efforts in different innovative aspect of firm namely, processes, products, and structure	1. My company has high percentage of new products in the existing product portfolio 2. My company has high number of new product / service projects. 3. My company has the ability to introduce new products / services to the market before competitors. 4. My company has introduced innovations for work processes and methods. 5. My company has introduced quality in new products / services. 6. My company has high number of innovations under intellectual property protection. 7. My company has renewing the administrative system and the mind-set that is in line with company's environment.	Gunday, Ulusoy, Kilic & Alpkan (2011)

3.4.2 Intellectual Capital

Intellectual capital is the first independent variable. In this study, intellectual capital is measured by three dimensions namely, human capital, structural capital and customer capital. Human capital is operationalized as the sum of the individual knowledge, skills, abilities and experiences of the employees of the organization (Wu, et al., 2008). Human capital is measured by six items adopted from Wu, et al. (2008).

The second dimension of intellectual capital, structural capital is operationalized as all non-human storehouses of knowledge in organizations, including databases, organizational charts, process manuals, strategies, routines and anything that the firm perceives to be higher value compared to its material value (Wu, et al., 2008). Structural capital is measured by seven items adopted from Wu, et al. (2008).

The third dimension, customer capital is operationalized as knowledge embedded in customers, suppliers, the government or related industry associations (Wu, et al., 2008). Customer capital is measured by six items from Wu et al. (2008). In the past, the intellectual capital instrument has been reported to have adequate internal consistency (the Cronbach alphas ranging from .91 to .94) (Wu, et al., 2008).

The items for human capital, structural capital and customer capital were rephrased to suit the agree-disagree response scales used for this study. The original and adapted versions of the 19 items are shown in Table 3.5.

Table 3.5
Original and adapted versions of intellectual capital items

Dimensions	Original version	Adapted version
Human capital	1. The knowledge and competence of our employees.	1. Our employees have the knowledge and competence
	2. The average educational level of workforce.	2. Our workforce have average educational level
	3. The firm supports our employees by constantly upgrading their skills and education whenever each of them feels it is necessary.	3. Our firms support the employees by constantly upgrading their skills and education whenever each of them feels it is necessary
	4. Instead of doing without thinking, our employees can work brightly.	4. Instead of doing without thinking, our employees can work brightly
	5. Individuals can share experiences	5. Our employees share their

Dimensions	Original version	Adapted version
	and knowledge with their colleagues.	experiences and knowledge with their colleagues
	6. Employees would share their creativity with their colleagues.	6. Our employees share their creativity with their colleagues
Structural capital	1. The overall operation procedure in company is very efficient	1. Our company's overall operation procedure is very efficient
	2. Responding to the changes quickly	2. Our company quick in responding to the changes
	3. It is supportive between different departments	3. Our company support between different departments
	4. Systems allow easy information access	4. Our company's systems allow easy information access
	5. The systems and procedures of our organization are flexible and efficient	5. Our company's systems and procedures are flexible and efficient
	6. Our organization's culture and atmosphere is supportive and comfortable	6. Our company's culture and atmosphere is supportive and comfortable
	7. Our organization prides itself on being efficient.	7. Our company prides itself on being efficient.
Customer capital	1. A poll of our customers would indicate that they are generally satisfied with our organization	1. A poll of our customers would indicate that they are generally satisfied with our company
	2. Our organization thrives on maintaining the most positive value added service of any firm in the industry	2. Our company thrives on maintaining the most positive value added service of any firm in the industry
	3. We emphasize on our customers' wants and strive to meet with customers	3. Our company emphasizes on our customers' wants and strive to meet with customers
	4. We get as much feedback out of our customers as we possibly can under the circumstances	4. Our company get as much feedback out of our customers as we possibly can under the circumstances
	5. Our organization prides itself on being market-oriented	5. Our company prides itself on being market-oriented
	6. We are confident of future with customer	6. Our company are confident of future with customer.

In this study, participants rated their degree of agreement with the human capital, structural capital and customer capital statements based on five-point scale whereby, 1 = strongly disagree, and 5 = strongly agree. Table 3.6 shows the intellectual capital items used in this study.

Table 3.6
Intellectual capital items

Variable	Dimensions	Operational definition	Items	Authors
Intellectual capital	Human capital	The sum of the individual knowledge, skills, abilities and experiences of the employees of the organization	1. Our employees have the knowledge and competence 2. Our workforce have average educational level 3. Our firms support the employees by constantly upgrading their skills and education whenever each of them feels it is necessary 4. Instead of doing without thinking, our employees can work brightly 5. Our employees share their experiences and knowledge with their colleagues 6. Our employees share their creativity with their colleagues	Wu, Chang, Chen (2008)
	Structural capital	All non-human storehouses of knowledge in organizations, including databases, organizational charts, process manuals, strategies, routines and anything that the firm perceives to be a higher value compared to its material value	1. Our company's overall operation procedure is very efficient 2. Our company quick in responding to the changes 3. Our company support between different departments 4. Our company's systems allow easy information access 5. Our company's systems and procedures are flexible and efficient 6. Our company's culture and atmosphere is supportive and comfortable 7. Our company prides itself on being efficient	
	Customer capital	Knowledge embedded in customers, suppliers, the government or related industry associations	1. A poll of our customers would indicate that they are generally satisfied with our company 2. Our company thrives on maintaining the most positive value added service of any firm in the industry 3. Our company emphasizes on	

Variable	Dimensions	Operational definition	Items	Authors
			our customers' wants and strive to meet with customers	
			4. Our company get as much feedback out of our customers as we possibly can under the circumstances	
			5. Our company prides itself on being market-oriented	
			6. Our company are confident of future with customer	

3.4.3 Organizational learning

Organizational learning is the second independent variable tested in this study. Organizational learning is operationalized as the process that involves acquisition, distribution and dissemination of information, collective interpretation and organizational memory among employees in the organization (Wang & Ellinger, 2011). Organizational learning is measured by four dimensions, namely information acquisition, information distribution, information interpretation and organizational memory.

According to Wang and Ellinger (2011), information acquisition is the ability of the firm to innovate and to continuously improve through the acquisition and use of knowledge and make them both a part of the learning culture. Meanwhile, information distribution is the spread of knowledge among the members of the organization to assist transference through individual organizational level of learning. Information interpretation is the sharing of the organization of its aims, knowledge and experience to its committed employees and the development of internal rotation programs for

employee shifting from one department to the next while providing learning opportunities. Finally, organizational memory is operationalized as the knowledge storage for future use in database or systems designed for storage, or in the form of rules, procedures or other systems for later use.

Organizational learning is measured by 25 items developed by Wang and Ellinger (2011). Studies have reported that the scale has adequate internal consistency (the Cronbach alphas for the 25-item scale ranging from .85 to .92) (Wang, 2008; Wang & Ellinger, 2011).

The items for organizational learning were rephrased to suit the agree-disagree response scales used for this study. The original and adapted versions of the 25 items are shown in Table 3.7.

Table 3.7
Original and adapted versions of organizational learning items

Dimensions	Original version	Adapted version
Information acquisition	1. Makes co-operation agreement with other companies, universities, technical colleges, etc	1. My company makes co-operation agreement with other companies, universities, technical colleges, etc
	2. Is in touch with professionals and expert technicians	2. My company is in touch with professionals and expert technicians
	3. Encourages employees to join formal or informal nets made up by people outside the organization	3. My company encourages employees to join formal or informal nets made up by people outside the organization
	4. Asks employees to attend fairs and exhibitions regularly	4. My company asks employees to attend fairs and exhibitions regularly
	5. Has a consolidated and resourceful R&D policy	5. My company has a consolidated and resourceful R&D policy
	6. New ideas and approaches on work performance are experimented continuously	6. My company has new ideas and approaches on work performance that are experimented continuously
	7. Has the organizational systems and	7. My company has the organizational

Dimensions	Original version	Adapted version
	procedures that support innovation.	systems and procedures that support innovation
Information distribution	1. Informs all members about the aim of the company 2. Holds meetings periodically to inform all the employees about the latest innovations in the company 3. Has formal mechanisms to guarantee the sharing of the best practices among the different fields of the activity 4. There are within the organization individuals who take part in several teams or divisions and who also act as links between them 5. Has individuals responsible for collecting, assembling, and distributing internally employee's suggestions.	1. My company informs all members about the aim of the company 2. My company holds meetings periodically to inform all the employees about the latest innovations in the company 3. My company has formal mechanisms to guarantee the sharing of the best practices among the different fields of the activity 4. My company has individuals who take part in several teams or divisions and who also act as links between them 5. My company has individuals responsible for collecting, assembling, and distributing internally employee's suggestions.
Information interpretation	1. All the members of the organization share the same aim to which they feel committed 2. Employees share knowledge and experience by talking to each other 3. Teamwork is a very common practice 4. The organization develops internal rotation programs so as to facilitate the shifts of the employees from one department or function to another 5. The organization offers other opportunities to learn (visits to other parts of the organization, internal training programs, etc.) so as to make individuals aware of other people or departments' duties.	1. In my company, all the members of the organization share the same aim to which they feel committed 2. In my company, employees share knowledge and experience by talking to each other 3. In my company, teamwork is a very common practice 4. My company develops internal rotation programs so as to facilitate the shifts of the employees from one department or function to another 5. My company offers other opportunities to learn (visits to other parts of the organization, internal training programs, etc.) so as to make individuals aware of other people or departments' duties.
Organizational memory	1. Has databases to stock its experiences and knowledge so as to be able to use them later on. 2. Has directories or emails field according to the field they belong to, so as to find an expert on a concrete issue at any time 3. Has up-to-date databases of its clients. 4. Has access to the organization's	1. My company has databases to stock its experiences and knowledge so as to be able to use them later on. 2. My company has directories or emails field according to the field they belong to, so as to find an expert on a concrete issue at any time 3. My company has up-to-date databases of its clients. 4. My company has access to the

Dimensions	Original version	Adapted version
	data basis and documents through some kind of network (Lotus Notes, Intranet, etc.).	organization's data basis and documents through some kind of network (Lotus Notes, Intranet, etc.).
	5. Keeps databases up-to-date	5. My company keeps databases up-to-date
	6. Allows all the employees have access to the organization's databases.	6. My company allows all the employees to have access to the organization's databases.
	7. Employees consult the databases.	7. In my company, employees consult the databases.
	8. The codification and knowledge administration system make work easier for the employees.	8. In my company, the codification and knowledge administration system make work easier for the employees.

In this study, participants rated their degree of agreement with organizational learning statements based on five-point scale whereby, 1 = strongly disagree, and 5 = strongly agree. Table 3.8 shows the organizational learning items used in this study.

Table 3.8
Organizational learning items

Variable	Dimensions	Operational definition	Items	Authors
Organizational learning	Information acquisition	The ability of the firm to innovate and to continuously improve through the acquisition and use of knowledge and make them both a part of the learning culture	1. My company makes co-operation agreement with other companies, universities, technical colleges, etc 2. My company is in touch with professionals and expert technicians 3. My company encourages employees to join formal or informal nets made up by people outside the organization 4. My company asks employees to attend fairs and exhibitions regularly 5. My company has a consolidated and resourceful R&D policy 6. My company has new ideas	Wang & Ellinger (2011)

Variable	Dimensions	Operational definition	Items	Authors
			and approaches on work performance that are experimented continuously	
			7. My company has the organizational systems and procedures that support innovation	
	Information distribution	The spread of knowledge among the members of the organization to assist transference through individual organizational level of learning	1. My company informs all members about the aim of the company 2. My company holds meetings periodically to inform all the employees about the latest innovations in the company 3. My company has formal mechanisms to guarantee the sharing of the best practices among the different fields of the activity 4. My company has individuals who take part in several teams or divisions and who also act as links between them 5. My company has individuals responsible for collecting, assembling, and distributing internally employee's suggestions	
	Information interpretation	The sharing of the organization of its aims, knowledge and experience to its committed employees and the development of internal rotation programs for employee shifting from one department to the next while providing learning opportunities	1. In my company, all the members of the organization share the same aim to which they feel committed 2. In my company, employees share knowledge and experience by talking to each other 3. In my company, teamwork is a very common practice 4. My company develops internal rotation programs so as to facilitate the shifts of the employees from one department or function to another 5. My company offers other opportunities to learn (visits to other parts of the organization, internal training programs, etc.) so as to make individuals aware of other people or departments' duties	

Variable	Dimensions	Operational definition	Items	Authors
	Organizational memory	The knowledge storage for future use in database or systems designed for storage, or in the form of rules, procedures or other systems for later use	1. My company has databases to stock its experiences and knowledge so as to be able to use them later on. 2. My company has directories or emails field according to the field they belong to, so as to find an expert on a concrete issue at any time 3. My company has up-to-date databases of its clients. 4. My company has access to the organization's data basis and documents through some kind of network (Lotus Notes, Intranet, etc.) 5. My company keeps databases up-to-date 6. My company allows all the employees to have access to the organization's databases 7. In my company, employees consult the databases 8. In my company, the codification and knowledge administration system make work easier for the employees	

3.4.4 Entrepreneurial Orientation

Entrepreneurial orientation is the moderating variable and is operationalized as the willingness of the firm towards adopting innovative activities and taking risks to come up with new products / services and to introduce new markets and proactively make a move prior to its competitors in availing of new opportunities in the market (Soininen, 2012). Entrepreneurial orientation is measured by 9 items developed by Soininen et al (2012). In the past, several studies have reported that the scale has adequate internal consistency (the Cronbach alphas for the 9-item scale ranging from .85 to .86) (Soininen et al., 2012; Sakari Soininen, Puumalainen, Sjögrén, Syrjä & Durst, 2013).

In this study, the items for entrepreneurial orientation were rephrased to suit the agree-disagree response scales used for this study. The original and adapted versions of the 9 items are shown in Table 3.9.

Table 3.9
Original and adapted versions of entrepreneurial orientation items

Original version	Adapted version
1. In our company, new ideas come up all the time	1. In my company, new ideas come up all the time
2. Continuous renewal and innovation are important for our company	2. Continuous renewal and innovation are important for my company
3. Lately we have launched many new products/ services	3. Lately my company has launched many new products/ services
4. We invest heavily in developing new products / services and business practices	4. My company invests heavily in developing new products / services and business practices
5. Our company often acts before the competitors do	5. My company often acts before the competitors do
6. We aim at being at the forefront of development in our business sector	6. My company aims at being at the forefront of development in our business sector
7. We prefer the cautious line of action even if some opportunity might be lost that way	7. My company prefers the cautious line of action even if some opportunity might be lost that way
8. Bold action is necessary to achieve our company's objectives	8. Bold action is necessary to achieve my company's objectives
9. In uncertain situations we are not afraid to take substantial risks	9. In uncertain situations my company is not afraid to take substantial risks

In this study, participants rated their degree of agreement with entrepreneurial orientation statements based on five-point scale whereby, 1 = strongly disagree, and 5 = strongly agree. Table 3.10 shows the entrepreneurial orientation items used in this study.

Table 3.10
Entrepreneurial orientation items

Variable	Operational definition	Items	Authors
Entrepreneurial orientation	The willingness of the firm towards adopting innovative activities and taking risks to come up with new products / services and to introduce new markets and proactively make a move prior to its competitors in availing of new opportunities in the market	1. In my company, new ideas come up all the time 2. Continuous renewal and innovation are important for my company 3. Lately my company has launched many new products/ services 4. My company invests heavily in developing new products / services and business practices 5. My company often acts before the competitors do 6. My company aims at being at the forefront of development in our business sector 7. My company prefers the cautious line of action even if some opportunity might be lost that way 8. Bold action is necessary to achieve my company's objectives 9. In uncertain situations my company is not afraid to take substantial risks	Soninen, Martikainen, Puumalainen,& Kyläheiko (2012)

3.5 Questionnaire Design

Acknowledging the cultural differences and since business in Jordan is carried out in both English and Arabic, all survey materials prepared for the participants were provided in both English and Arabic. Participants were given the choice between the two versions so that they could express their ideas freely. The Arabic version was sent to authorize translation office in Jordan (the certification of authorized translation office is shown in Appendix B). Each participant in this survey received ten-page questionnaire (with cover letter attached). The questionnaire used in this study is shown in Appendix C and the Arabic version in Appendix D.

The ten-page questionnaire consisted of five sections. Section 1 asked about the innovative performance and there are 7 items. Section 2 asked about intellectual capital and there are 19 items. In section 3, there are 25 items asking about organizational learning. In Section 4 of the questionnaire, there are 9 items on entrepreneurial orientation.

The final section of the questionnaire, Section 5, is the organization background. This information is necessary to show that the sample is representative and to ensure that generalizations to the wider population of organizations can be made.

3.6 Pilot Test

Saunders et al. (2009) believed that it is always useful to carry out a pilot study before the actual data collection. A pilot study is not a pre-test, but it is used more formatively to help the researcher in constructing pertinent lines of questioning (Yin, 1994). It is done by testing and checking the questionnaire on a small sample of the subjects through the pilot study.

The purpose of conducting pilot study is to achieve a flawless questionnaire so that it would be possible for the researcher to take all the necessary modifications after the pilot study. As stated by Sekaran and Bougie (2010), a pilot study is performed to correct any inadequacies in the instrument prior to data collection. In other words, the researcher would have a sufficient time to check the reliability, validity and viability

of the research instrument as well as to determine the time needed for conducting the actual study.

For this study, the pilot test was conducted at Zarqa city in May 2016. The questionnaire was distributed to 30 SMEs managers/owners. There were no changes required to the questionnaire. The internal consistency reliabilities (Cronbach's Alpha) of the research measures from the pilot study are reported in Table 3.11. As shown in Table 3.11 and more details are attached in Appendix E1, all variables have satisfactory reliability values ranging from .80 to .91.

Table 3.11
The cronbach alpha for each research measures from the pilot study (n = 30)

Variable	No. of Items	Cronbach alpha
Innovative Performance	7	0.827
Human Capital	6	0.831
Structural Capital	7	0.819
Customer Capital	6	0.844
Information Acquisition	7	0.796
Information Distribution	5	0.805
Information Interpretation	5	0.814
Organizational Memory	8	0.917
Entrepreneurial Orientation	9	0.802

3.6 Data Collection Procedure

Before the actual data collection is conducted, the questionnaire sent to expert (at least 3 academicians) in innovative performance for content validity. Once the questionnaire has been validated by the expert, a pre-test conducted with 3 academicians. The purpose of conducting a pre-test is to ensure the adequacy of items, including the wording, phrase and the flow of the items in the questionnaire. Then, a pilot study conducted with 30 SMEs in Jordan to test the reliability and validity of the items in the questionnaire (names of pre-test experts are shown in Appendix F)

The actual data collection process began after the pilot study was conducted. First, a formal letter was sent to all SMEs under study, explaining the background of the study and seeking their permission to conduct the survey. Then, potential SMEs were contacted personally by telephone. Through the initial telephone conversation, the researcher introduced himself, explained the purpose of the call and asked for an appointment with the SMEs owner/manager to conduct the survey. Once the respondent agreed to participate in the study on behalf of the firm, a date was fixed at the respondent's convenience.

During the survey sessions with respondents, the researcher personally administered and collected the completed questionnaire. Each respondent assured that all the information given will remain confidential at all times and will be used for the study only. They were not requested to identify themselves in that they do not put their names on the survey forms. Respondents have been given 30 minutes to complete the forms. More time were given to those who could not complete the forms in 30 minutes if they wished. For respondents who were not able to fill out the

questionnaire during the meeting, a follow-up telephone call reminder was used to remind respondents about returning the questionnaire.

3.7 Data Analysis

The present study employed PLS path modelling (Wold, 1985) using Smart PLS 2.0 M3 software (Ringle, Sarstedt, & Straub, 2012) to test the theoretical model. The PLS path modeling is considered the most suitable technique in this study for several reasons: First, even though PLS path modeling is similar to conventional regression technique, it has the advantage of estimating the relationships between constructs (structural model) and relationships between indicators and their corresponding latent constructs (measurement model) simultaneously (Chin, Marcolin, & Newsted, 2003; Duarte & Raposo, 2010; Wold, 1985).

Secondly, compared to other path modelling software (e.g., AMOS; Analysis of Moment Structures), the Smart PLS 2.0 M3 software is friendly graphical user interface, which help users create a moderating effect for path models with interaction effects (Temme, Kreis, & Hildebrandt, 2006).

Several steps were followed in the data analysis. First, the data collected was screen using SPSS to ensure that it is suitable for the PLS analysis. Second, to ascertained the measurement model, individual item reliabilities, internal consistency reliabilities, convergent validity and discriminant validity were calculated using Smart PLS 2.0 M3 software (Hair, Ringle, & Sarstedt, 2011; Henseler, Ringle & Sinkovics, 2009).

Third, standard bootstrapping procedure with a number of 5000 bootstrap samples and 316 cases was applied to evaluate the structural model (Hair et al., 2011; Hair, Sarstedt, Ringle, & Mena, 2012; Henseler et al., 2009). In particular, the significance of the path coefficients, level of the R-squared values, effect size and predictive relevance of the model were assessed (e.g., Hair, Hult, Ringle, & Sarstedt, 2014a).

Fourth, after the analyses of the main PLS path model were run, a supplementary PLS-SEM analysis (i.e., moderator analysis) was conducted. As suggested by Henseler and Fassott (2010) and Henseler et al. (2009) on approaches to the analysis of moderating effects in PLS path models, a two-stage approach was used to test the moderating effect of entrepreneurial orientation in the relationship between intellectual capital, organizational learning and innovative performance. The fourth step also requires the ascertaining the strength of the moderating effects using Cohen's (1988) effect size formula.

3.8 Conclusion

This chapter has explained the research method and strategy for the study. It described how the sample of the organizations was obtained, the selection of the respondents, development of the questionnaire, the research materials, and the survey procedure. This chapter also briefly explains the adoption of several analyses such as structural model) and measurement model to test the research hypotheses.

CHAPTER FOUR

FINDINGS

4.1 Introduction

Chapter 4 reports the results of the study. This chapter begins by reporting the response rate, test of non-response bias and the demographic characteristics of the participants. It then presents the screening process and continues with a report on utilizing PLS path modeling. This chapter analyzes the measurement model through the reliability of an individual item, internal consistency reliability, convergent validity, discriminant validity and cross-loadings analysis of measures used. In addition, this chapter analyzes the structural model which includes the significance of the path coefficients, the intensity of the R-squared values, effect size and predictive relevance of the model. Lastly, this chapter presents the PLS-SEM analysis.

4.2 Response Rate

As discussed in Chapter 3, a total of 600 questionnaire were distributed between June and September 2016, and the respondents were requested to complete the questionnaires within a day. At the end of the survey period ended, a total of 325 questionnaires were returned and usable for further analysis, yielding a response rate of 54.1%. According to Sekaran and Bougie (2010), response rate of 30% is sufficient for surveys. Table 4.1 presents the summary of the response rate from previous studies in the context of SMEs in Jordan.

Table 4.1
Respondents' response rate of Jordanian Studies related to SMEs

Study	Response Rate Percentage	Industries
AL-allak (2010)	32%	SMEs
Magableh, Kharabsheh & Al-Zubi (2011)	64%	Industrial and Services Sector of SMEs
Al-Hyari et al. (2012)	56%	Manufacturing SMEs
Al-Hyari (2013)	61.5%	Manufacturing SMEs

Table 4.2 presents the summary of the respondents' response rate.

Table 4.2
Respondents' response rate

Cites	Number and percentage of questionnaires distributed		Number and percentage of questionnaires received	
	No.	%	No.	%
Amman	508	84.6	268	52.7
Irbid	49	8.2	27	55
Zarqa	43	7.2	30	69.7
Total	600	100	325	54.1

4.3 Non-Response Bias

According to Linder and Wingenbach (2002), non-respondents are differ from respondents in terms of their attitudes, behaviors, personalities and motivations – where any or all can potentially affect the study results. In other writing, Lambert and Harrington (1990, p.5) refer non-response bias as “the differences in the answers provided by non-respondents and respondents”.

Therefore, in the present study, the t-test was employed to compare the similarities between non-respondents and respondents in terms of the mean, standard deviation and standard error mean of the data provided. Levene's test was also employed to examine early and late responses to the main study variables (i.e., intellectual capital, organizational learning, entrepreneurial orientation and innovative performance).

Approach suggested by Armstrong and Overton (1977) were adopted to test non-response bias by dividing the respondents into two main groups, early responses and late responses. The early responses group are those who returned the questionnaires within a month after distribution, and the late responses are those who returned them after two months after distribution. A total of 175 respondents was categorized under early responses group, while another 150 respondents were categorized under late responses group. Both descriptive statistics and Levene's test were employed to determine equality of variance of the main study variables.

As shown in Table 4.3, no significant values were detected to be higher than 0.05, indicating equality of variances. The two groups were also found to come from the same population and as such, not significant differences were found between early and late respondents in light of the study variables ($p < 0.05$). Thus, it was concluded that non-response bias was not an issue in this study. Detailed results of non-response bias obtained from the descriptive statistics test and Levene's test are presented in Appendix E2.

Table 4.3
Test of non-response bias

	Bias	N	Mean	Levene's test for equality of variances		t-test for equality of means
				F	Sig.*	Sig.* (2-tailed)
Innovative performance	Early	175	3.6592	.011	.918	.537
	Late	150	3.7019			.536
Human capital	Early	175	4.0783	.059	.808	.493
	Late	150	4.0422			.493
Structural capital	Early	175	4.0981	.009	.923	.392
	Late	150	4.1410			.390
Customer capital	Early	175	3.9930	1.295	.588	.064
	Late	150	4.0922			.064
Information acquisition	Early	175	3.4836	.179	.673	.852
	Late	150	3.5000			.852
Information distribution	Early	175	3.8313	2.570	.110	.560
	Late	150	3.7920			.563
Information interpretation	Early	175	3.9964	.402	.527	.481
	Late	150	3.9613			.479
Organizational memory	Early	175	3.6928	2.079	.108	.180
	Late	150	3.5925			.184
Entrepreneurial orientation	Early	175	3.6847	2.636	.105	.065

4.4 Common Method Variance Test

Common method variance (CMV) which is also known as monomethod bias refers to variance that is attributable to the measurement method rather than to the construct of

interest (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Researchers have generally agreed that common method variance is a major concern for scholars using self-report surveys (Lindell & Whitney, 2001; Podsakoff et al., 2003; Eichhorn, 2014). For example, Eichhorn (2014) argued that common method bias can inflate the relationships between variables measured by self-reports.

In the present study, several procedures have been taken to minimize the effects of common method variance (Lindell & Whitney, 2001; Podsakoff et al., 2003; Eichhorn, 2014). First, to reduce evaluation apprehension, participants were informed that there is no right or wrong answer to the items in the questionnaire. They were also assured that all the information given will remain confidential at all times and will be used for the study only. Second, improved on the scale items by avoiding vague concepts in the questionnaire. If such concepts were used, simple examples were provided. All questions in the survey were also written in a simple, specific and concise language.

Apart from the procedure discussed above, the present study also adopted Harman's single factor test to examine common method variance (Podsakoff et al., 2003). In this procedure, all variables of interest are subjected to an exploratory factor analysis and the results of the un-rotated factor solution are then examined to ascertain the number of factors that are necessary to account for the variance in the variables (Podsakoff et al., 2003). The main assumption of Harman's single factor test is that if a substantial amount of common method variance is present, either a single factor may emerge, or one general factor would account for most of the covariance in the predictor and criterion variables (Podsakoff et al., 2003).

Following Podsakoff et al. (2003) suggestions, all items in this study were subjected to a principal components factor analysis. The result indicates no bias is shown as the extraction of the first factor accounted 34.83 % of the total 78.60 % variance, which is less than 50% threshold. The results also indicate that no single factor accounted for the majority of covariance in the predictor and criterion variables (Podsakoff et al., 2003). Hence, this suggests that common method bias is not a major concern and is unlikely to inflate relationships between variables measured in the present study.

4.5 Demographic Characteristics of the Participants

Detailed descriptive statistics of the participants' demographic characteristics are presented in Table 4.4. It is noted that 64.9% of the SMEs employed between 20-99 employees. Majority of the SMEs (61.2%) surveyed have been in operation for more than ten years. In terms of ownership of the company, 46.2% of the SMEs are limited liability. Majority of the SMEs (82%) were located in Amman. Finally, 51.4% of the SMEs were manufacturing.

Table 4.4
Profile of the responding SMEs (n=325)

Description	Frequency	%
Total number of employees		
5-19	114	35.1
20-99	211	64.9
Age of company		
3 - 5 years	32	9.8
6 -10 years	94	28.9

> 10 years	199	61.2
Ownership of the company		
Individual	79	24.3
Partnership	74	22.8
Limited Liability	150	46.2
Limited Partnership	22	6.8
City		
Amman	268	82.5
Zarqa	30	9.2
Irbid	27	8.3
Type of Industry		
Manufacturing	167	51.4
Internal trade	55	16.9
Construction	30	9.2
Services	61	18.8
Financial, banks and Insurance	10	3.1
Others	2	0.6

4.6 Data Screening and Preliminary Analysis

Before conducting the primary data analysis, data collected was tested for data entry accuracy, outliers and distributional properties. In particular, data screening was carried out by examining the fundamental descriptive statistics and frequency distributions. The process consists of four assumptions namely, the identification of missing data, outliers, normality, linearity and homoscedasticity.

4.6.1 Missing Values

Data was tested for missing values and as recommended by Hair, Ringle and Sarstedt (2013), a full report of data characteristics and missing values treatment should be included in the analysis. The provision of the missing values report is important to maximize the confidence of results. In this study, 2 items (Information acquisition question 1 and Entrepreneurial orientation question 5) contained missing information, constituting a missing data percentage of less than 5%. To address this, mean value replacement method is utilized as the missing data values appeared to be in random order (Tabachnick & Fidell, 2007). The mean value replacement was also recommended by Hair, Hult, Ringle and Sarstedt (2014a) in cases where the number of missing values in data set per indicator is relatively minimal (less than 5% per indicator).

4.6.2 Outliers

Outliers are observations that have distinct characteristics from others (Hair, Black, Babin & Anderson, 2010) and multivariate methods are generally used for their detection. In relation to this, the most extensively used method for outliers' identification is the Mahalanobis distance that measures the distance of each observation from the mean center of the entire observations in the multidimensional area (Hair et al., 2010).

Outliers, according to Tabachnick and Fidel (2007) are individuals that possess extreme scores on an individual variable or set of variables in a way that this may lead

to distortion of the overall results. The measurement of outliers is such that the greater the value of Mahalanobis d-squared distance for a case, the more improbability of its further proximity from the solution centroid under normality assumptions. This is the reason why the highest d-squared could be regarded as outliers and they can be dropped from the analysis. Hence, the Mahalanobis distance was tested and compared to the critical values present in the Chi-Square table.

A multivariate outlier is said to exist when the Mahalanobis distance is higher compared to the Chi-Square value. But, if the opposite is true, then the response is not a multivariate outlier (i.e., when the Mahalanobis value is smaller compared to the critical value (χ^2)) (Hair et al., 2010; Tabachnick & Fidel, 2007). In relation to this, the critical value (χ^2) statistic can be calculated, with the degree of freedom equal to the variables number entered into the list of independent variables at $p < 0.001$ level of significance (Tabachnick & Fidel, 2007; Pallant, 2010). In reference to the distribution table of Chi-Square, the critical value at the level of significance of 0.001 and 7 degree of freedom was at 24.322. On the basis of MAH_1 output, there were nine cases identified as outliers (82, 322, 325, 323, 324, 113, 129, 321 and 313) as their MAH_1 was higher compared to the threshold value of 24.322. All the nine cases were deleted from further analysis. The outliers test results are presented in Appendix E3.

4.6.3 Normality Test

Pallant (2010) described normality as the condition of symmetrical curve that has the highest frequency of scores in the middle and smaller frequency to the extreme sides.

The test of normality is carried out with the help of histograms, skewness and kurtosis, where the values of skewness and kurtosis of a normal distribution are equal to zero. The values that are higher, or lower than zero depicts deviation from normality (Hair et al., 2010). In the present study, none of the variables had skewness values higher than 1.041, or kurtosis index higher than 2.473. Hence, data was assumed to have normal distribution. Also, the histograms that checked normality revealed normally distributed scores, which show that data of all variables followed a normal curve. The normality scores for variables outputs are presented in Appendix E4.

In relatively large sample sizes, skewness is not known to make a substantive difference in the analysis (Tabachnick & Fidell, 2007). While kurtosis can lead to underestimation of the variance, the risk is minimized in large-sized samples (200+ cases) (Tabachnick & Fidell, 2007). There are also some tests that can evaluate the values of skewness and kurtosis but they are sensitive with large samples and as such, Tabachnick and Fidell (2007) suggested the use of histogram to inspect the distribution shape.

4.6.4 Linearity and Homoscedasticity

Linearity refers to an implicit assumption of the entire multivariate methods that is based on correlational measures of association (i.e., multiple regression, logistic regression, factor analysis and structural equation modeling). On the other hand, homoscedasticity is described as the assumption that dependent variable(s) show the equal variance levels throughout the different predictor variables (Hair et al., 2010).

The linearity and homoscedasticity results for the entire variables viewed through scatter plot diagrams shows no non-linear patterns and the distribution of residuals indicate the absence of heteroscedasticity among the variables. The detailed results of this test are presented in Appendix E5.

4.6.5 Multicollinearity

Hair et al. (2010) described multicollinearity as the degree to which a variable is explainable by other variables included in the analysis. The multicollinearity test results revealed that the tolerance values fell between 0.299 and 0.487, while the variance inflation factor (VIF) values fell between 2.05 and 3.348. Considering the tolerance value is significantly higher than 0.10, and the VIF values are less than 10, multicollinearity was not an issue in this study. The multicollinearity test results are presented in Appendix E6.

Although normal data distribution was indicated by the normality and multicollinearity tests, the study employed PLS-SEM to run data analysis, an analysis described as not requiring restrictive distributional data assumptions (Hair et al., 2014a; Wong, 2013). If the data are somewhat non-normal, Hair et al. (2011) recommends the use of PLS-SEM but under normal data conditions, the results of the same are considerably similar.

4.6.6 Descriptive Analysis of the Latent Constructs

In this section, the descriptive statistics results for the latent variables are presented in terms of mean values and standard deviations. The entire latent variables were gauged through a five-point Likert scale whereby 1=strongly disagree to 5=strongly agree (See Table 4.5). Easy interpretation of the five-point Likert scale required the use of three equal sized categories; scores lower than 2.33 [$5-1/3$ + lowest value (1)] were considered low; scores of 3.67 [highest value (5) – $(5-1)/3$] were considered high, and scores lying in between the two were considered moderate. The three categories are shown below:

1.00 – 2.33 low level

2.34 – 3.66 moderate level

3.67 – 5.00 high level

Table 4.5
Descriptive statistics for latent variables

Latent Constructs	Number of Items	Mean	Standard Deviation (SD)
Innovative performance	7	3.68	0.61
Human Capital	6	4.06	0.47
Structural Capital	7	4.12	0.44
Customer Capital	6	4.04	0.46
Information Acquisition	7	3.49	0.78
Information Distribution	5	3.81	0.60
Information Interpretation	5	3.98	0.44
Organizational Memory	8	3.65	0.66
Entrepreneurial Orientation	9	1.99	0.88

As shown in Table 4.5, the overall mean of the latent variables is in the range of 1.99 to 4.12. More specifically, the mean value found for innovative performance (3.68), three intellectual capital dimensions, namely human capital (4.06), structural capital (4.12) and customer capital (4.04) and two dimensions of organizational learning, namely information distribution (3.81) and information interpretation (3.98) were rated high. The remaining dimensions namely, information acquisition (3.49) and organizational memory (3.65) were considered moderate, while, entrepreneurial orientation was considered low at 1.99.

4.7 Evaluation of the Model Quality

Data analysis was primarily conducted with the help of Smart PLS, Version 2.0 M3 as recommended by Wold (1985), Hair, Sarstedt, Hopkins & Kuppelwieser, 2014b; Wong, 2013; Henseler et al., 2009). Hair et al., (2011) stated that Smart PLS is extensively utilized in management science, with the PLS model analyzed and interpreted in two phases (Hair et al., 2014a; Valerie, 2012). The first phase involves the testing of the measurement model (outer model) to make sure that it is valid and reliable. At this phase, the researcher has to examine the measurement properties of multi-item constructs based on convergent validity, discriminant validity and reliability through confirmatory factor analysis (CFA). The second phase involves the analysis of the proposed structural model by R-square, effect size, predictive relevance of the model, and goodness of fit (GoF). This is followed by the hypotheses testing with the help of bootstrapping method (Please refer to Figure 4.1).

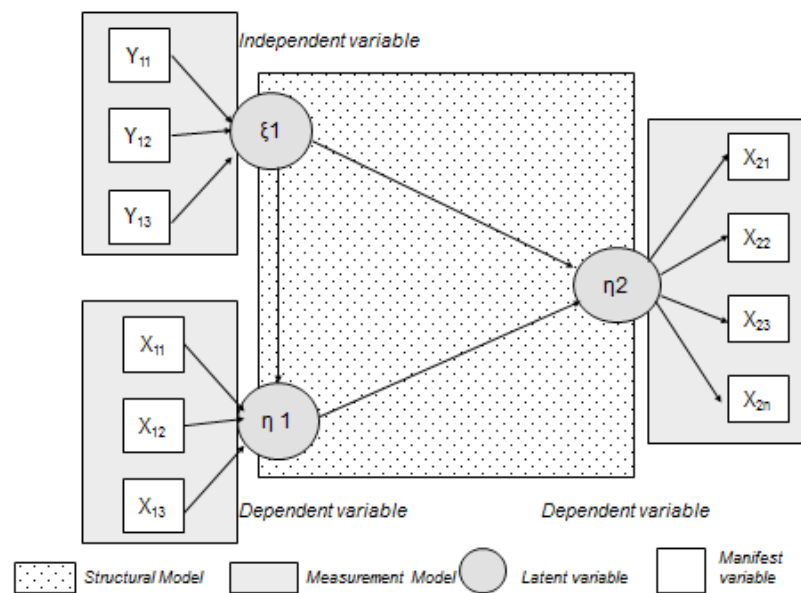
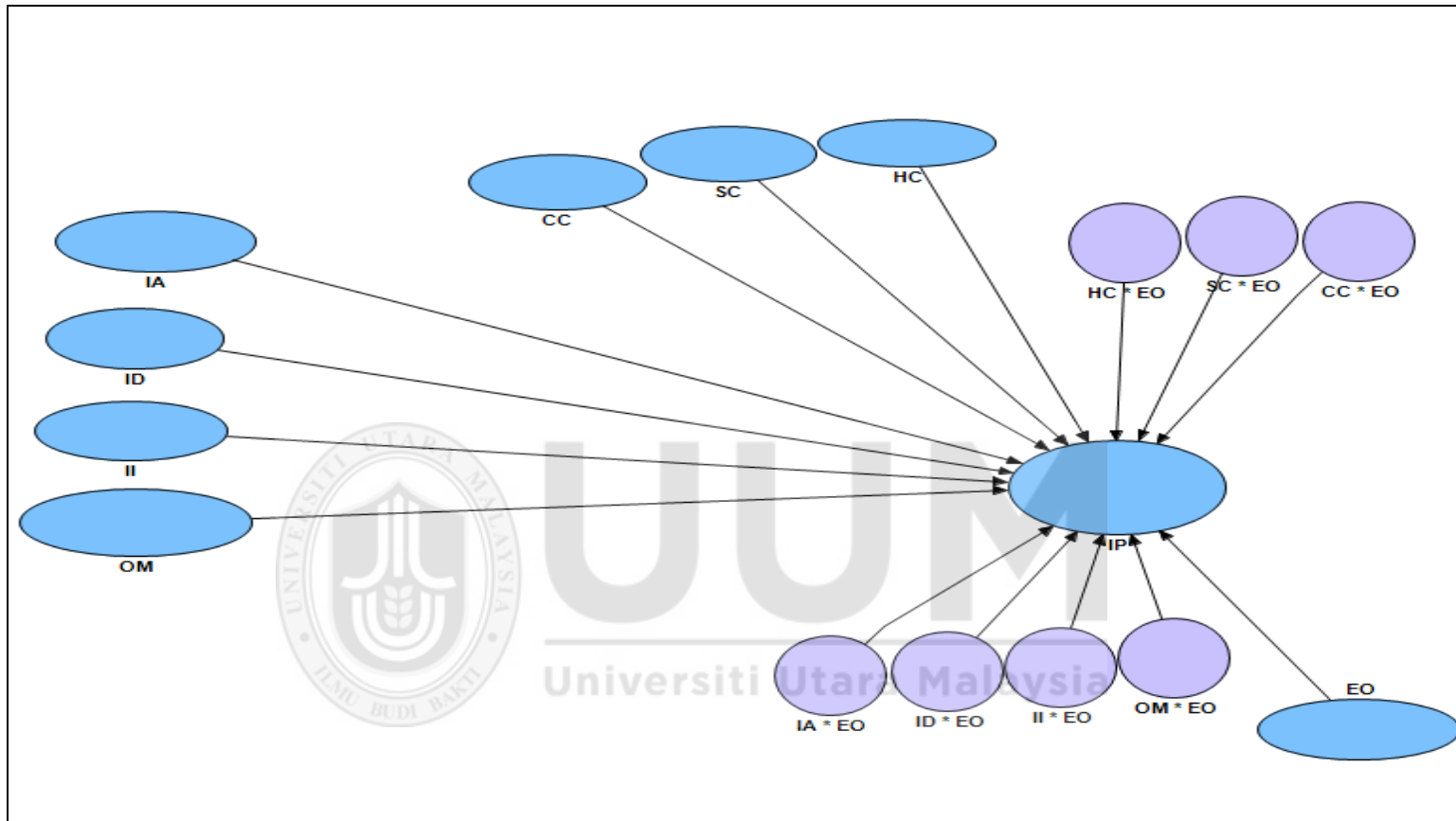


Figure 4.1. Measurement model and structural model

The initial study model comprised of 60 reflective measurement items in the form of variables or indicators for the eight latent variables – these include seven independent variables, one dependent variable and one moderating variable. All the variables make up 14 hypothesized relationships as depicted in Figure 4.2.



Note: IP: Innovative performance, HC: Human Capital, SC: Structural Capital, CC: Customer Capital, IA: Information Acquisition, ID: Information Distribution, II: Information Interpretation, OM: Organizational Memory, EO: Entrepreneurial Orientation.

Figure 4.2. Original study model

4.7.1 Measurement Model

Validity and reliability are the two main criteria that are utilized for the evaluation of the measurement models. Reliability refers to the level of consistency of a measuring instrument when measuring a concept, while validity refers to the accuracy of the instrument's developed measure the concept they are intended to measure (Sekaran & Bougie, 2010). In the assessment of the reflective measurement items, researchers generally follow the guidelines suggested by Hair et al. (2011) and Gotz, Liehr-Gobbers and Krafft (2010). This involves the assessment of the construct validity, convergent validity and discriminant validity, followed by the reliability analysis.

4.7.1.1 Construct Validity

Construct validity refers to the degree to which the results obtained from the use of measure matches the theories upon which the test is developed for (Sekaran & Bougie, 2010). In other words, the instrument has to be able to tap the concept as posited by the theory (Ramayah, Lee & In, 2011). This can be determined through the assessment of the convergent and discriminant validity by obtaining the respective loadings and cross loadings and examining them. According to Hair et al., (2014b) and Hair et al., (2011), it is important that the indicator loadings should exceed 0.70, and thus, the cut-off for factor loadings in the present study is set at 0.70. Table 4.6 presents the loadings and cross-loadings prior to deletion.

Table 4.6
Loadings and cross loadings (before deletion)

	Customer Capital (CC)	Entrepreneurial Orientation (EO)	Human Capital (HC)	Information Acquisition (IA)	Information Distribution (ID)	Information Interpretation (II)	Innovative Performance (IP)	Organizational Memory (OM)	Structural Capital (SC)
CC1	0.76	-0.10	0.59	0.44	0.51	0.56	0.50	0.53	0.52
CC2	0.82	-0.04	0.59	0.48	0.46	0.51	0.54	0.54	0.57
CC3	0.85	-0.08	0.51	0.58	0.53	0.49	0.63	0.56	0.50
CC4	0.86	-0.08	0.52	0.58	0.54	0.49	0.66	0.63	0.51
CC5	0.77	-0.13	0.50	0.52	0.57	0.49	0.55	0.57	0.49
CC6	0.71	-0.01	0.49	0.41	0.42	0.40	0.49	0.48	0.45
EO1	-0.10	0.87	-0.03	-0.09	-0.08	-0.13	-0.07	-0.17	0.04
EO2	-0.07	0.93	-0.04	-0.04	-0.08	-0.13	-0.03	-0.13	0.04
EO3	-0.08	0.92	-0.13	-0.09	-0.13	-0.16	-0.09	-0.20	-0.03
EO4	-0.07	0.78	-0.02	-0.05	0.00	-0.09	-0.03	-0.14	0.02
EO5	-0.11	0.86	-0.12	-0.12	-0.06	-0.14	-0.08	-0.18	-0.03
EO6	-0.05	0.89	-0.06	-0.06	-0.06	-0.11	-0.05	-0.18	0.02
EO7	-0.07	0.89	-0.12	-0.08	-0.15	-0.18	-0.08	-0.20	-0.04

EO8	-0.07	0.92	-0.03	-0.03	-0.09	-0.14	-0.02	-0.14	0.04
EO9	-0.10	0.80	-0.03	-0.08	-0.11	-0.17	-0.04	-0.19	0.03
HC1	0.49	0.01	0.77	0.42	0.40	0.41	0.48	0.43	0.44
HC2	0.40	-0.11	0.67	0.30	0.44	0.44	0.39	0.52	0.33
HC3	0.53	-0.07	0.82	0.48	0.53	0.43	0.53	0.51	0.52
HC4	0.58	-0.07	0.76	0.43	0.52	0.51	0.50	0.44	0.47
HC5	0.51	-0.08	0.81	0.44	0.47	0.52	0.45	0.40	0.59
HC6	0.54	-0.11	0.77	0.47	0.51	0.53	0.50	0.41	0.62
IA1	0.52	-0.04	0.41	0.84	0.36	0.40	0.61	0.48	0.35
IA2	0.49	-0.02	0.42	0.86	0.40	0.40	0.62	0.48	0.41
IA3	0.52	-0.05	0.42	0.85	0.41	0.43	0.60	0.51	0.41
IA4	0.48	-0.05	0.44	0.81	0.48	0.39	0.54	0.49	0.43
IA5	0.47	0.03	0.38	0.78	0.35	0.34	0.47	0.44	0.41
IA6	0.25	-0.27	0.30	0.32	0.33	0.27	0.37	0.38	0.30
IA7	0.53	-0.14	0.49	0.66	0.54	0.44	0.66	0.61	0.57
ID1	0.53	-0.01	0.50	0.47	0.73	0.38	0.49	0.41	0.59
ID2	0.48	-0.03	0.46	0.40	0.81	0.43	0.44	0.48	0.46
ID3	0.53	-0.15	0.53	0.45	0.86	0.51	0.52	0.61	0.51

ID4	0.51	-0.10	0.49	0.39	0.82	0.46	0.41	0.47	0.42
ID5	0.50	-0.13	0.51	0.49	0.78	0.50	0.51	0.54	0.47
II1	0.41	-0.07	0.50	0.30	0.48	0.60	0.30	0.36	0.36
II2	0.49	-0.10	0.48	0.33	0.35	0.82	0.32	0.38	0.39
II3	0.48	-0.06	0.51	0.35	0.38	0.80	0.40	0.39	0.41
II4	0.48	-0.19	0.42	0.44	0.47	0.79	0.43	0.45	0.33
II5	0.44	-0.17	0.41	0.48	0.48	0.72	0.42	0.59	0.33
IP1	0.56	-0.07	0.45	0.56	0.42	0.38	0.80	0.50	0.33
IP2	0.59	-0.04	0.49	0.61	0.47	0.41	0.85	0.53	0.36
IP3	0.65	-0.02	0.55	0.62	0.49	0.44	0.88	0.55	0.48
IP4	0.60	-0.06	0.56	0.61	0.61	0.44	0.80	0.57	0.50
IP5	0.48	-0.02	0.49	0.54	0.37	0.38	0.69	0.47	0.47
IP6	0.28	-0.19	0.21	0.39	0.24	0.19	0.40	0.33	0.32
IP7	0.49	-0.07	0.43	0.59	0.47	0.37	0.72	0.54	0.45
OM1	0.52	-0.17	0.39	0.52	0.46	0.48	0.46	0.74	0.33
OM2	0.52	-0.18	0.34	0.57	0.44	0.45	0.46	0.75	0.35
OM3	0.50	-0.12	0.38	0.55	0.39	0.42	0.51	0.78	0.34
OM4	0.55	-0.10	0.45	0.69	0.46	0.47	0.57	0.78	0.42

OM5	0.54	-0.14	0.44	0.44	0.45	0.42	0.56	0.82	0.42
OM6	0.53	-0.22	0.53	0.46	0.60	0.48	0.56	0.81	0.48
OM7	0.60	-0.20	0.53	0.49	0.61	0.48	0.59	0.84	0.50
OM8	0.63	-0.15	0.60	0.45	0.57	0.51	0.54	0.79	0.52
SC1	0.59	0.00	0.54	0.61	0.52	0.44	0.55	0.49	0.73
SC2	0.44	-0.04	0.51	0.40	0.38	0.30	0.43	0.34	0.75
SC3	0.46	-0.01	0.45	0.47	0.45	0.36	0.40	0.46	0.75
SC4	0.45	-0.05	0.48	0.41	0.56	0.38	0.33	0.43	0.68
SC5	0.40	0.02	0.44	0.27	0.38	0.33	0.30	0.34	0.72
SC6	0.38	0.01	0.43	0.25	0.39	0.31	0.34	0.29	0.69
SC7	0.35	0.06	0.33	0.21	0.32	0.24	0.31	0.23	0.65

In this study, 9 loadings were dropped due to their values, which were lower than 0.70. The items were HC2 at 0.67, IA6 at 0.32, IA7 at 0.66, II1 at 0.60; IP5 at 0.69, IP6 at 0.40, SC5 at 0.68, SC6 at 0.69 and SC7 at 0.65 (Please refer to Figure 4.3). Following the deletion of the mentioned items, the remaining items measuring a specific construct had high loadings as indicated in Table 4.7.



Table 4.7
Loadings and cross loadings (after deletion)

	Customer Capital (CC)	Entrepreneurial Orientation (EO)	Human Capital (HC)	Information Acquisition (IA)	Information Distribution (ID)	Information Interpretation (II)	Innovative Performance (IP)	Organizational Memory (OM)	Structural Capital (SC)
CC1	0.76	-0.11	0.59	0.39	0.51	0.53	0.48	0.53	0.49
CC2	0.82	-0.04	0.61	0.40	0.46	0.49	0.52	0.54	0.54
CC3	0.85	-0.08	0.51	0.54	0.53	0.48	0.63	0.56	0.49
CC4	0.86	-0.08	0.52	0.54	0.54	0.48	0.66	0.63	0.54
CC5	0.77	-0.13	0.49	0.47	0.57	0.47	0.56	0.57	0.51
CC6	0.71	-0.01	0.50	0.37	0.42	0.39	0.49	0.48	0.44
EO1	-0.10	0.86	-0.02	-0.05	-0.08	-0.14	-0.05	-0.17	0.02
EO2	-0.07	0.92	-0.03	0.01	-0.08	-0.13	-0.02	-0.13	0.01
EO3	-0.08	0.93	-0.12	-0.01	-0.13	-0.16	-0.08	-0.20	-0.05
EO4	-0.07	0.76	-0.02	-0.02	0.00	-0.10	-0.01	-0.14	0.00
EO5	-0.11	0.87	-0.11	-0.07	-0.06	-0.14	-0.07	-0.18	-0.04
EO6	-0.05	0.88	-0.06	0.00	-0.06	-0.12	-0.04	-0.18	-0.01
EO7	-0.07	0.91	-0.12	-0.01	-0.15	-0.17	-0.07	-0.20	-0.06
EO8	-0.07	0.91	-0.02	0.02	-0.09	-0.14	-0.01	-0.14	0.01

EO9	-0.10	0.79	-0.01	-0.05	-0.11	-0.19	-0.02	-0.19	0.01
HC1	0.49	0.00	0.76	0.38	0.39	0.37	0.46	0.44	0.41
HC3	0.53	-0.08	0.81	0.41	0.53	0.39	0.50	0.51	0.51
HC4	0.58	-0.08	0.76	0.36	0.52	0.48	0.50	0.44	0.46
HC5	0.50	-0.09	0.84	0.41	0.47	0.49	0.43	0.40	0.61
HC6	0.53	-0.11	0.80	0.41	0.51	0.49	0.48	0.41	0.62
IA1	0.52	-0.04	0.43	0.89	0.36	0.40	0.61	0.48	0.44
IA2	0.49	-0.02	0.43	0.88	0.40	0.39	0.61	0.48	0.50
IA3	0.52	-0.05	0.43	0.88	0.41	0.43	0.57	0.51	0.48
IA4	0.48	-0.05	0.46	0.84	0.48	0.37	0.52	0.49	0.49
IA5	0.47	0.03	0.40	0.83	0.35	0.34	0.41	0.44	0.46
ID1	0.52	-0.01	0.50	0.39	0.73	0.35	0.48	0.41	0.60
ID2	0.48	-0.03	0.44	0.32	0.81	0.40	0.44	0.48	0.44
ID3	0.53	-0.15	0.52	0.36	0.86	0.49	0.52	0.61	0.51
ID4	0.51	-0.10	0.49	0.34	0.82	0.42	0.42	0.47	0.42
ID5	0.50	-0.13	0.50	0.42	0.78	0.46	0.51	0.54	0.46
II2	0.49	-0.10	0.48	0.28	0.35	0.81	0.30	0.38	0.35
II3	0.48	-0.06	0.51	0.30	0.38	0.78	0.39	0.39	0.36

II4	0.48	-0.18	0.40	0.39	0.47	0.83	0.42	0.45	0.34
II5	0.44	-0.17	0.39	0.43	0.48	0.76	0.41	0.59	0.39
IP1	0.57	-0.07	0.45	0.51	0.42	0.38	0.83	0.50	0.36
IP2	0.59	-0.04	0.49	0.57	0.47	0.41	0.88	0.53	0.39
IP3	0.65	-0.02	0.54	0.55	0.49	0.44	0.89	0.55	0.48
IP4	0.60	-0.06	0.57	0.54	0.61	0.40	0.81	0.57	0.52
IP7	0.49	-0.08	0.42	0.48	0.47	0.38	0.71	0.54	0.43
OM1	0.52	-0.17	0.38	0.49	0.46	0.49	0.45	0.74	0.41
OM2	0.52	-0.18	0.32	0.51	0.44	0.45	0.44	0.75	0.42
OM3	0.50	-0.12	0.36	0.49	0.39	0.43	0.49	0.78	0.38
OM4	0.55	-0.10	0.44	0.65	0.46	0.45	0.54	0.78	0.46
OM5	0.54	-0.15	0.41	0.37	0.45	0.42	0.55	0.82	0.41
OM6	0.53	-0.23	0.49	0.33	0.60	0.46	0.56	0.81	0.43
OM7	0.60	-0.21	0.50	0.37	0.61	0.47	0.57	0.84	0.48
OM8	0.63	-0.15	0.57	0.36	0.57	0.49	0.52	0.79	0.51
SC1	0.59	0.00	0.57	0.56	0.52	0.43	0.52	0.49	0.83
SC2	0.44	-0.05	0.52	0.32	0.38	0.28	0.40	0.34	0.76
SC3	0.46	-0.01	0.45	0.42	0.45	0.34	0.36	0.46	0.79

SC4	0.45	-0.05	0.48	0.35	0.56	0.36	0.31	0.43	0.72
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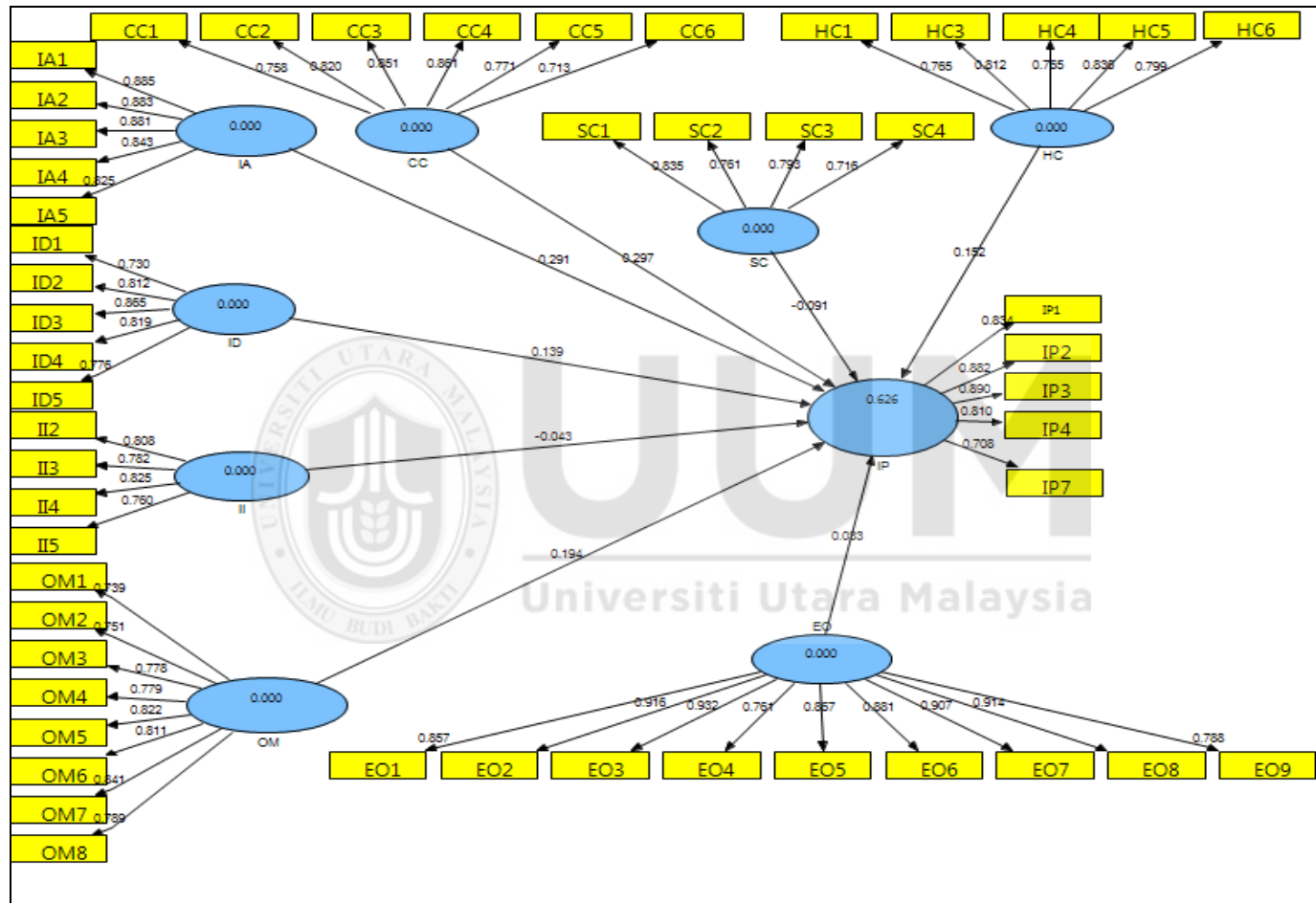


Figure 4.3. Construct validity for study model

4.7.1.2 Convergent Validity

Convergent validity refers to the accurate consistency to which several items measure the same concept (Ramayah et al., 2011). According to classical test theory, convergent validity is based on the correlation between responses obtained through different measurement methods measuring a specific construct (Peter, 1981). Researchers are recommended to use factor loadings, composite reliability (CR) and average variance extracted (AVE) for their assessment of convergence validity (Hair et al., 2010).

The entire item loadings have to exceed the value of 0.70 (Hair et al., 2011; Valerie, 2012). Also, the values of composite reliability indicate the level to which the construct indicators reflect the latent variable and they should be greater than 0.70 as suggested by Hair et al. (2011) and Valerie (2012). In this study, the composite reliability values fell in the range from 0.86 to 0.94, indicating good convergent validity (Please refer to Table 4.8).

Finally, Henseler, Ringle and Sarstedt (2015) stated that the average variance extracted (AVE) displays the average amount of variance that a construct explains in its indicator variables in relation to the overall variance of the indicators. Its value should exceed 0.50 to justify the construct use (Hair et al., 2011; Valerie, 2012). In the present study, the AVE values ranged from 0.62 to 0.76, showing that they fell within the recommended range (Please refer to Table 4.8). In short, the latent variables met the threshold value and satisfy the standard recommended convergent validity values.

Table 4.8
Results of measurement model – Convergent validity

Constructs	Items	Loading	Average variance extracted (AVE)	CR
Innovative Performance	IP1	0.83	0.68	0.92
	IP2	0.88		
	IP3	0.89		
	IP4	0.81		
	IP7	0.71		
Human Capital	HC1	0.76	0.63	0.90
	HC3	0.81		
	HC4	0.76		
	HC5	0.84		
	HC6	0.80		
Structural Capital	SC1	0.83	0.60	0.86
	SC2	0.76		
	SC3	0.79		
	SC4	0.72		
Customer Capital	CC1	0.76	0.64	0.91
	CC2	0.82		
	CC3	0.85		
	CC4	0.86		
	CC5	0.77		
	CC6	0.71		
Information Acquisition	IA1	0.89	0.75	0.94
	IA2	0.88		
	IA3	0.88		
	IA4	0.84		
	IA5	0.83		

Information Distribution	ID1	0.73	0.64	0.90
	ID2	0.81		
	ID3	0.86		
	ID4	0.82		
	ID5	0.78		
Information Interpretation	II2	0.81	0.63	0.87
	II3	0.78		
	II4	0.83		
	II5	0.76		
Organizational Memory	OM1	0.74	0.62	0.93
	OM2	0.75		
	OM3	0.78		
	OM4	0.78		
	OM5	0.82		
	OM6	0.81		
	OM7	0.84		
	OM8	0.79		
Entrepreneurial Orientation	EO1	0.87	0.76	0.94
	EO2	0.93		
	EO3	0.92		
	EO4	0.78		
	EO5	0.86		
	EO6	0.89		
	EO7	0.89		
	EO8	0.92		
	EO9	0.80		

4.7.1.3 Discriminant Validity

The measures of discriminant validity is described as the level to which the items distinguish among the constructs or the way they measure distinct concepts. Hair et al., (2011) stated that discriminant validity requires that each latent construct's AVE should exceed the construct's highest squared correlation with other latent construct (Fornell–Larcker's [1981] criterion) and the indicators loadings should surpass all its cross-loadings.

Discriminant validity for the present study's measures was examined with the help of Fornell and Larcker's (1981) mentioned criterion. As for the correlation matrix presented in Table 4.9, the diagonal elements denote the average variance square root obtained from the latent constructs. In this regard, discriminant validity is said to be confirmed if the diagonal elements are higher compared to the other off-diagonal elements in the rows and columns. Clearly, this was the case in the correlation matrix and as such, discriminant validity is confirmed.

Table 4.9
Correlations among constructs and discriminant validity

	Customer Capital	Entrepreneurial Orientation	Human Capital	Information Acquisition	Information Distribution	Information Interpretation	Innovative Performance	Organizational Memory	Structural Capital
Customer Capital	0.80								
Entrepreneurial Orientation	-0.10	0.87							
Human Capital	0.67	-0.09	0.80						
Information Acquisition	0.58	-0.03	0.50	0.86					
Information Distribution	0.64	-0.11	0.61	0.46	0.80				
Information Interpretation	0.59	-0.17	0.56	0.45	0.53	0.79			
Innovative Performance	0.70	-0.06	0.60	0.64	0.60	0.49	0.83		
Organizational Memory	0.69	-0.21	0.55	0.56	0.63	0.58	0.65	0.79	
Structural Capital	0.63	-0.03	0.65	0.55	0.61	0.46	0.53	0.55	0.78

4.7.1.4 Reliability Analysis

In this study, composite reliability was employed for the assessment of inter-item consistency. This type of reliability estimates the internal consistency of the measurement items of constructs (Hair et al., 2014b). PLS-SEM is capable of accommodating various indicator reliabilities (differences in the indicator loadings) while simultaneously steering clear of underestimating Cronbach's alpha. The composite reliability (CR) values have to exceed 0.70 as recommended by Hair et al., (2011) and Valerie (2012). The CR values of the entire constructs are showed in Table 4.10 which indicating construct reliability.

Table 4.10
Composite reliabilities of constructs

Model Constructs	Number of items	Composite Reliability (CR)
Innovative Performance	5	0.92
Human Capital	5	0.90
Structural Capital	4	0.86
Customer Capital	6	0.91
Information Acquisition	5	0.94
Information Distribution	5	0.90
Information Interpretation	4	0.87
Organizational Memory	8	0.93
Entrepreneurial Orientation	9	0.94

4.7.2 Structural Model

Following the ascertainment of the measurement model, the structural model was assessed through the bootstrapping procedure with 5000 bootstrap samples and 316 cases. This was conducted to assess the path coefficients significance (Hair et al., 2014a; Hair et al., 2011; Hair et al., 2012; Henseler, Ringle & Sarstedt, 2016; Henseler et al., 2009). The first step involved the assessment of the significance of the direct relationship of the structural model, while the second step involved the assessment of the significance of the structural model in terms of moderating effects.

4.7.2.1 Assessment of Significance of the Structural Model (Direct Relationship)

The structural model estimates are shown in Figure 4.4 and Table 4.11 which include direct relationship among the variables. Hypothesis 1a proposed that human capital is positively related to innovative performance. Based on the results presented in Table 4.11 and Figure 4.4, a significant positive relationship was found between the two variables ($\beta = 0.152$, $t = 2.518$, $p < 0.05$). Thus, Hypothesis 1a is supported. Hypothesis 1b proposed that structural capital is positively related to innovative performance. However, results shown in Table 4.11 showed no significant relationship between the two variables ($\beta = -0.091$, $t = 1.492$, $p > 0.05$). Therefore, Hypothesis 1b is not supported. Hypothesis 1c predicted that there is a significant relationship between customer capital and innovative performance. The results supported this prediction ($\beta = 0.297$, $t = 3.745$, $p < 0.01$), and thus, Hypothesis 1c is supported.

Hypothesis 2a proposed a positive relationship between information acquisition and innovative performance. Based on the results shown in Table 4.11 and Figure 4.4, a significant positive relationship was found between the two variables ($\beta = 0.291$, $t = 5.207$, $p < 0.01$). Therefore, Hypothesis 2a is supported. As predicted by Hypothesis 2b, positive relationship was found between information distribution and innovative performance ($\beta = 0.139$, $t = 2.035$, $p < 0.05$). Therefore, Hypothesis 2b is supported. Hypothesis 2c proposed a positive relationship between information interpretation and innovative performance. However, the results showed in Table 4.11 and Figure 4.4 indicate that there is no significant relationship between the two variables ($\beta = -0.043$, $t = 0.991$, $p > 0.10$). Therefore, Hypothesis 2c is not supported.

Finally, the results in Table 4.11 and Figure 4.4 showed positive relationship between organizational memory and innovative performance ($\beta = 0.194$, $t = 3.329$, $p < 0.01$). Thus, Hypothesis 2d is supported.

Table 4.11
Structural model assessment (direct relationship)

Hypothesis	Relation	Beta	Standard Error	t- value	p- value	Decision
H1a	Human Capital -> Innovative Performance	0.152	0.062	2.518	0.01**	Supported
H1b	Structural Capital -> Innovative Performance	-0.091	0.062	1.492	0.07	Not Supported
H1c	Customer Capital -> Innovative Performance	0.297	0.084	3.745	0.00***	Supported
H2a	Information Acquisition -> Innovative Performance	0.291	0.056	5.207	0.00***	Supported
H2b	Information Distribution -> Innovative	0.139	0.067	2.035	0.02**	Supported

Performance

H2c	Information Interpretation -> Innovative Performance	-0.043	0.042	0.991	0.16	Not Supported
H2d	Organizational Memory -> Innovative Performance	0.194	0.056	3.329	0.00***	Supported

Note: t-values > 1.65* (p< 0.10); t-values > 1.96** (p< 0.05); t-values > 2.58*** (p< 0.01)

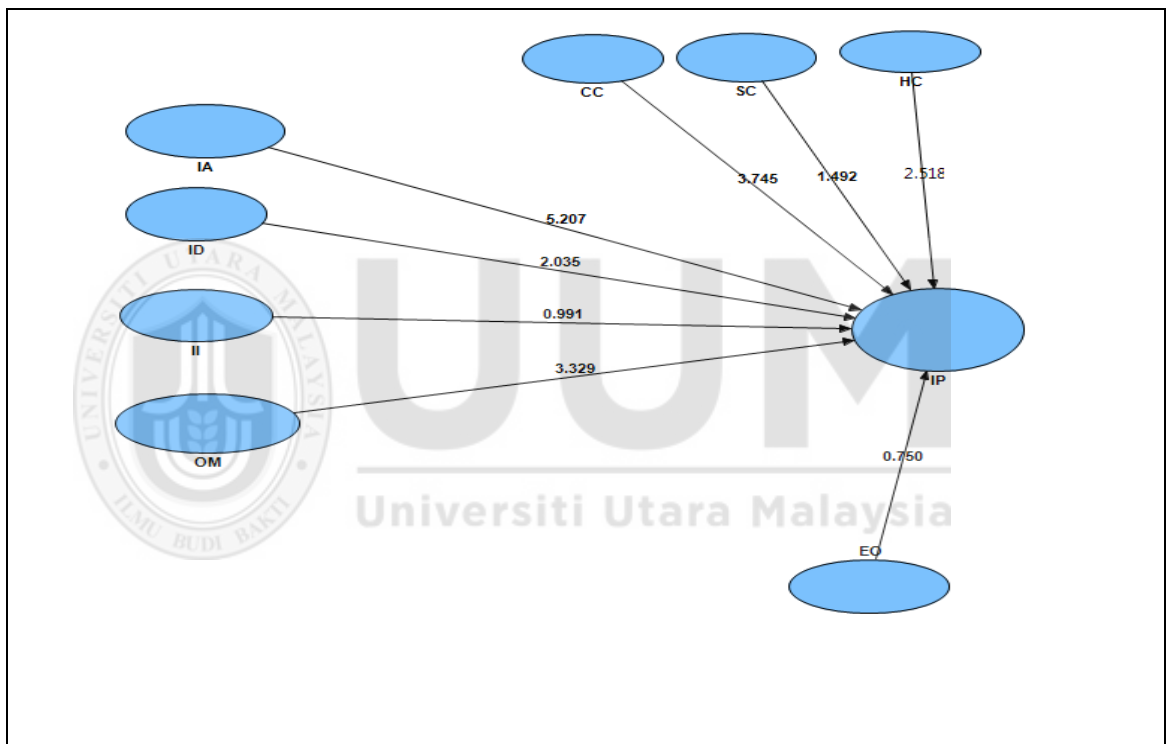


Figure 4.4. Structural model (direct relationship)

4.7.2.2 Assessment of Significance of the Structural Model (Moderating Relationship)

After ascertaining the direct relationship, the next step is to assess the structural model for the full relationship. In this study, the standard bootstrapping method was applied with 5000 bootstrap samples and 316 cases. These were employed to conduct an assessment of the path coefficients significance as explained by Hair et al. (2014a), Hair et al. (2011), Hair et al. (2012), Henseler et al. (2016), and Henseler et al. (2009). Therefore, the full structural model's estimates are presented in Figure 4.5 and Table 4.12, including the moderating variable namely, entrepreneurial orientation.

The results concerning the moderating effect of entrepreneurial orientation on the relationships between intellectual capital (human capital, structural capital and customer capital), organizational learning (information acquisition, information distribution, information interpretation and organizational memory), and innovative performance are shown in Figure 4.5 and Table 4.12.

In this study, Hypothesis 3a proposed the relationship between human capital and innovative performance through the moderating role of entrepreneurial orientation. The obtained result was not supported the hypothesis at ($\beta = 0.060$, $t = 0.141$, $p > 0.10$). Similarly, the results shown in Table 4.12, Figure 4.5 was not support Hypothesis 3b, which proposed that the moderating role of entrepreneurial orientation on the relationship between structural capital and innovative performance and the results did not support it at ($\beta = -0.380$, $t = 0.841$, $p > 0.10$). On the other hand, the results shown in Table 4.12, Figure 4.5 was support Hypothesis 3c, which proposed

that the moderating role of entrepreneurial orientation on the relationship between customer capital and innovative performance and the results support it at ($\beta = 1.000$, $t = 1.981$, $p < 0.05$).

As un expected, the results shown in Table 4.12, Figure 4.5 did not support Hypothesis 4a, which proposed that the moderating role of entrepreneurial orientation on the relationship between information acquisition and innovative performance ($\beta = -0.055$, $t = 0.178$, $p > 0.10$). Similarly, the results shown in Table 4.12, Figure 4.5 was not support Hypothesis 4b, which proposed that the moderating role of entrepreneurial orientation on the relationship between information distribution and innovative performance and the results did not support it at ($\beta = -0.187$, $t = 0.511$, $p > 0.10$). According to the result in Table 4.12, which posited that entrepreneurial orientation moderates the relationship between information interpretation and innovative performance, indicating that Hypothesis 4c was rejected ($\beta = -0.136$, $t = 0.596$, $p > 0.10$). Lastly, the results shown in Table 4.12, Figure 4.5 did not support Hypothesis 4d, which proposed that the moderating role of entrepreneurial orientation on the relationship between organizational memory and innovative performance ($\beta = -0.416$, $t = 1.160$, $p > 0.10$).

Table 4.12
Structural model with moderating relationship

Hypothesis	Relation	Beta	Std Error	t- value	p- value	Decision
H3a	Human Capital * Entrepreneurial Orientation -> Innovative Performance	0.060	0.428	0.141	0.44	Not supported
H3b	Structural Capital * Entrepreneurial Orientation -> Innovative Performance	-0.380	0.451	0.841	0.20	Not supported

H3c	Customer Capital * Entrepreneurial Orientation -> Innovative Performance	1.000	0.505	1.981	0.02**	Supported
H4a	Information Acquisition * Entrepreneurial Orientation -> Innovative Performance	-0.055	0.294	0.187	0.43	Not supported
H4b	Information Distribution * Entrepreneurial Orientation -> Innovative Performance	0.187	0.366	0.511	0.30	Not supported
H4c	Information Interpretation * Entrepreneurial Orientation -> Innovative Performance	-0.136	0.228	0.596	0.28	Not supported
H4d	Organizational Memory * Entrepreneurial Orientation -> Innovative Performance	-0.416	0.359	1.160	0.12	Not supported

Note: t-values > 1.65* (p< 0.10); t-values > 1.96** (p< 0.05); t-values > 2.58*** (p< 0.01)

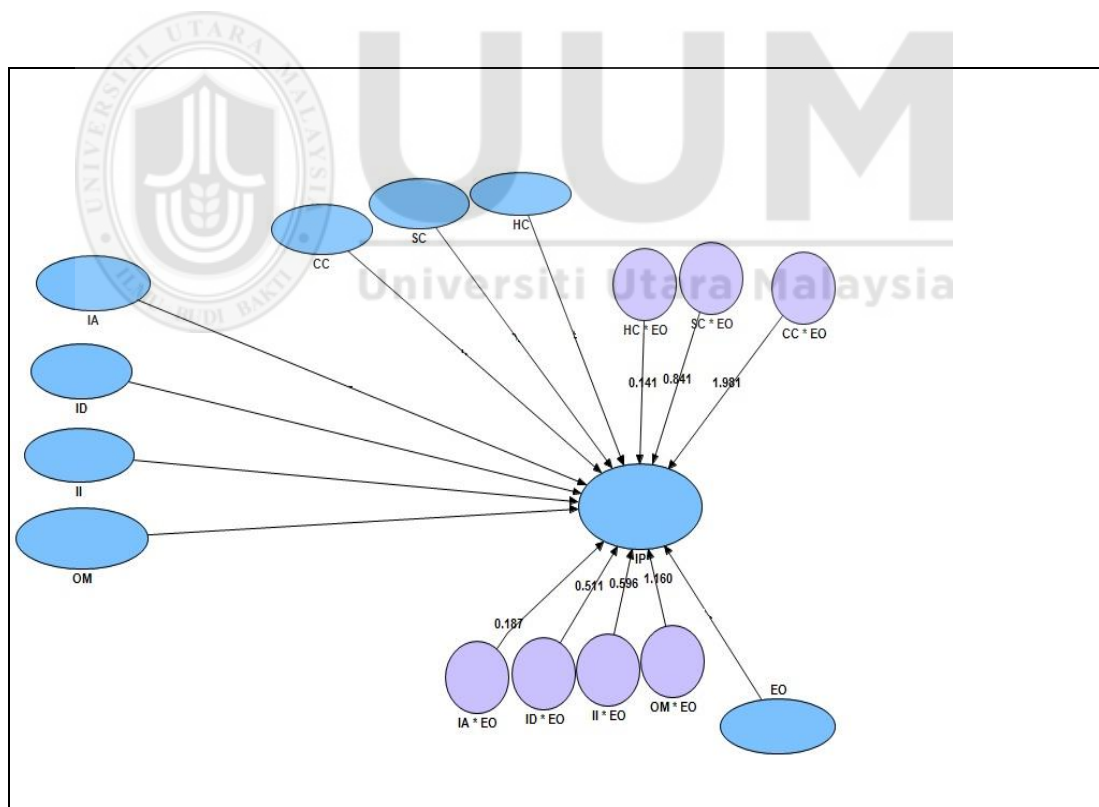


Figure 4.5. Structural model with moderating relationship

Following the procedures suggested by Dawson (2014), information from the path coefficients was used to plot the moderating effect of entrepreneurial orientation on the relationship between customer capital and innovative performance. As shown in Table entrepreneurial orientation was found significantly moderates the relationship between customer capital and innovative performance. Figure 4.6 illustrated the relationship graphically where entrepreneurial orientation show greater variance in innovative performance under high customer capital, and lower variance under low customer capital. In other words, SMEs show higher innovative performance when they have high levels of customer capital.

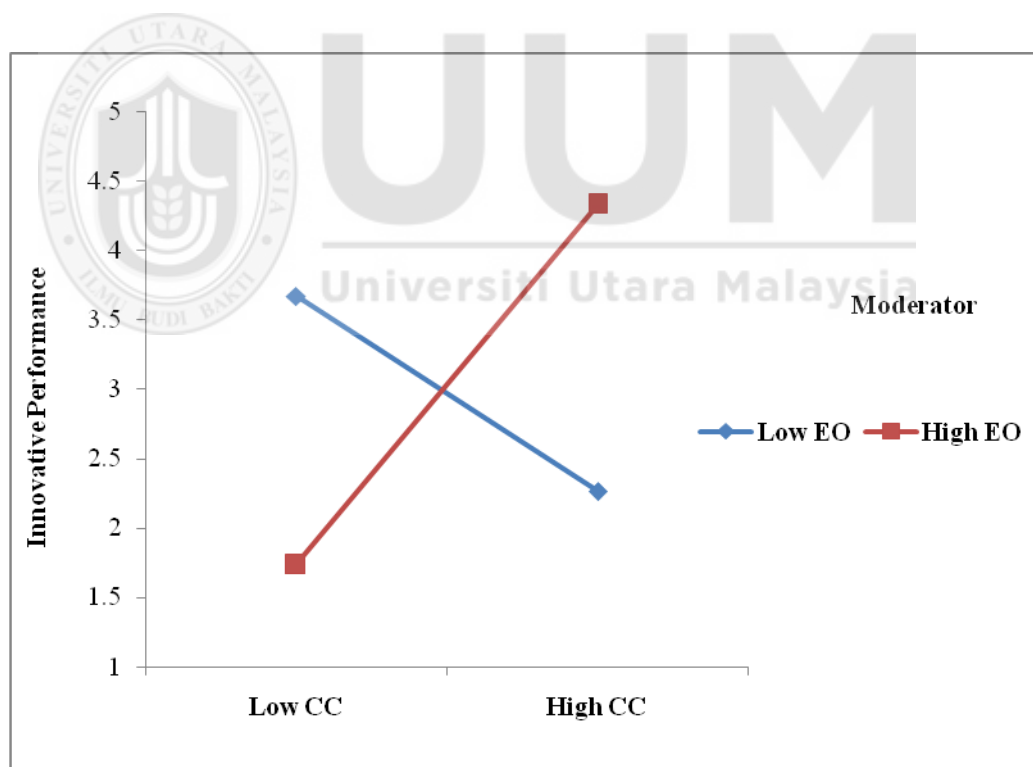


Figure 4.6. Plot of interaction between customer capital and entrepreneurial orientation on innovative performance

4.7.2.4 Assessment of Variance Explained in the Endogenous Latent Variables

In assessing the structural model through PLS-SEM, another significant criterion is the R-squared value, which is also referred to as the coefficient of determination (Hair et al., 2011; Hair et al., 2014a; Henseler et al., 2009). The value indicates the variation proportion in the dependent variable(s) that one or more predictor variables are able to explain (Elliott & Woodward, 2007; Hair et al., 2010; Hair et al., 2006). Despite the fact that the acceptable value level of R² value hinges on the context of the research as explained by Hair et al. (2010), an R-squared value of 0.10 was proposed by Falk and Miller (1992) as the least acceptable level. Chin (1998) proposed the R-squared values of 0.67, 0.33 and 0.19 in PLS-SEM as substantial, moderate and weak respectively. The R-squared values of the two endogenous latent variables are presented in Table 4.13.

Table 4.13
Variance explained in the endogenous latent variables

Latent Variables	Variance Explained (R ²)
Innovative Performance (Direct terms)	0.626
Innovative Performance (Interaction terms)	0.641

As shown in Table 4.13, the model with eight sets of exogenous latent variables (human capital, structural capital, customer capital, information acquisition, information distribution, information interpretation, organizational memory and entrepreneurial orientation) explained 62.6% of the total variance in innovative performance. Thus, the criterion put forward by Falk and Miller (1992) and Chin

(1998) was met where the endogenous latent variables had acceptable levels of R-squared values that are required as moderate values. The R-squared for interaction model was found to be 0.641, which indicates that the eight exogenous latent variables explained 64.1% of the variance in innovative performance.

4.7.2.5 Assessment of Effect Size (f^2)

Effect size refers to the relative effect of a specific exogenous latent variable on the endogenous latent variable(s) through the R-squared changes (Chin, 1998). Effect size is calculated as the increase in R-squared of the latent variable, to which the path is linked, in relation to the latent variable's proportion of variance that is unexplained (Chin, 1998). Therefore, the effect size is indicated by the formula below (Cohen, 1988; Selya, Rose, Dierker, Hedeker & Mermelstein, 2012; Callaghan, Wilson, Ringle & Henseler, 2007).

$$f^2 = \frac{R_{included}^2 - R_{excluded}^2}{1 - R_{included}^2}$$

Cohen (1988) explained that the (f^2) values of 0.02, 0.15 and 0.35 can be considered small, moderate and large respectively. The respective effect sizes of the structural model's latent variables are shown in Table 4.14.

Table 4.14
Effect sizes of the latent variables

Constructs	R ² Include	R ² Exclude	Effect Size- f^2	Results
------------	------------------------	------------------------	-----------------------	---------

Innovative Performance				
Human Capital	0.626	0.616	0.03	Small
Structural Capital	0.626	0.623	0.01	None
Customer Capital	0.626	0.597	0.06	Small
Information Acquisition	0.626	0.578	0.13	Small
Information Distribution	0.626	0.617	0.02	Small
Information Interpretation	0.626	0.625	0.00	None
Organizational Memory	0.626	0.611	0.04	Small

As shown in Table 4.14, the effect sizes for human capital, structural capital, customer capital, information acquisition, information distribution, information interpretation and organizational memory on innovative performance are 0.03, 0.01, 0.06, 0.13, 0.02, 0.00 and 0.04 respectively. Based on Cohen's (1988) guideline, the seven exogenous latent variables effect sizes on innovative performance can be considered to be none or small.

The strength of the moderating effects of entrepreneurial orientation on the relationship between intellectual capital, organizational learning and innovative performance can be determined by Cohen's (1988) effect sizes. The effects can be assessed by conducting a comparison of the coefficient of determination (R-squared value) of the main effect model with the R-squared value of the full model that includes exogenous constructs and moderating construct (Henseler & Fassott, 2010; Wilden, Gudergan, Nielsen & Lings, 2013). In other words, the moderating effects can be expressed by the following equation (Cohen, 1988; Henseler & Fassott, 2010):

$$= \frac{R^2_{\text{model with moderator}} - R^2_{\text{model without moderator}}}{1 - R^2_{\text{model with moderator}}}$$

Effect size: f^2

According to Cohen (1988) and Henseler and Fassott (2010), moderating effect sizes of $f^2 \geq 0.02$ is considered to be small, while $f^2 \geq 0.15$ is moderate and $f^2 \geq 0.35$ is large. In other writing, Chin et al. (2003) argued that low effect size does not translate into insignificant moderating effect because a small interaction effect could be meaningful in extreme moderating conditions and in cases when the beta changes are meaningful. Thus, it is crucial to take such conditions into consideration (Chin et al., 2003, p.211). In this study, the strength of the effects of entrepreneurial orientation is presented in Table 4.15.

The researcher followed the rule of thumb established by Henseler and Fassot (2010) and Cohen (1988) to determine the strength of the moderating effects. The results in Table 4.15 indicates that the effect size for customer capital* entrepreneurial orientation is 0.02. This result shows a small moderating effect according to Henseler, Wilson, Gotz and Hautvast (2007) and Wilden et al. (2013).

Table 4.15
Strength of the moderating effects

Constructs	R ² Include	R ² Exclude	Effect Size- f^2	Results
Innovative Performance				
Human Capital* Entrepreneurial Orientation	0.641	0.641	0.00	None
Structural Capital * Entrepreneurial Orientation	0.641	0.64	0.00	None
Customer Capital* Entrepreneurial	0.641	0.633	0.02	Small

Orientation				
Information Acquisition* Entrepreneurial Orientation	0.641	0.641	0.00	None
Information Distribution* Entrepreneurial Orientation	0.641	0.641	0.00	None
Information Interpretation* Entrepreneurial Orientation	0.641	0.641	0.00	None
Organizational Memory* Entrepreneurial Orientation	0.641	0.639	0.00	None

4.7.2.6 Goodness of Fit (GoF) of the Model

According to Tenenhaus, Vinzi, Chatelin and Lauro (2005), the global fit measure refers to a geometric mean of the average variance extracted and the endogenous variables average R^2 and the PLS-SEM has a single GoF measure. The GoF is obtained through the calculation of the following formula;

$$GoF = \sqrt{(R^2 \times AVE)}$$

$$GoF = \sqrt{(0.63 \times 0.68)} = 0.65$$

The obtained GoF of 0.65 was compared with the baseline values as explained by Wetzels, Odekerken-Schroder and Van Oppen (2009). They considered 0.1 as small, 0.25 as medium and 0.36 as large GoF. Therefore, the GoF value obtained is higher compared to the adequate validity of the global PLS model.

4.7.2.7 Assessment of the Predictive Relevance

In this study, the researcher used Stone-Geisser test of predictive relevance on the research model with the help of blindfolding procedures (Geisser, 1974; Stone, 1974). The test of predictive relevance is often employed to supplement the assessment of GoF in PLS-SEM (Duarte & Raposo, 2010).

The present study used the cross-validated redundancy measure (Q^2) for the assessment of the predictive relevance of the research model as suggested by the literature (e.g., Chin, 2010; Geisser, 1974; Hair et al., 2013; Ringle et al., 2012; Stone, 1974). The Q^2 indicates measure criterion as to how well a model predicts the data of omitted cases (Chin, 1998; Hair et al., 2014a). In relation to this, Henseler et al. (2009) argued that a research model with Q^2 statistic(s) that exceeds 0 is required in order to have predictive relevance. Moreover, a model possessing higher Q^2 values indicates higher predictive relevance. The results of the cross-validated redundancy Q^2 test are displayed in Table 4.16. Table 4.16 and Figure 4.7 show that the Q^2 for endogenous latent variable exceeds zero at 0.4400, confirming the model's predictive relevance.

Table 4.16
Construct cross-validated redundancy

Constructs	SSO	SSE	1-SSE/SSO
Innovative Performance	1580	884.781	0.4400

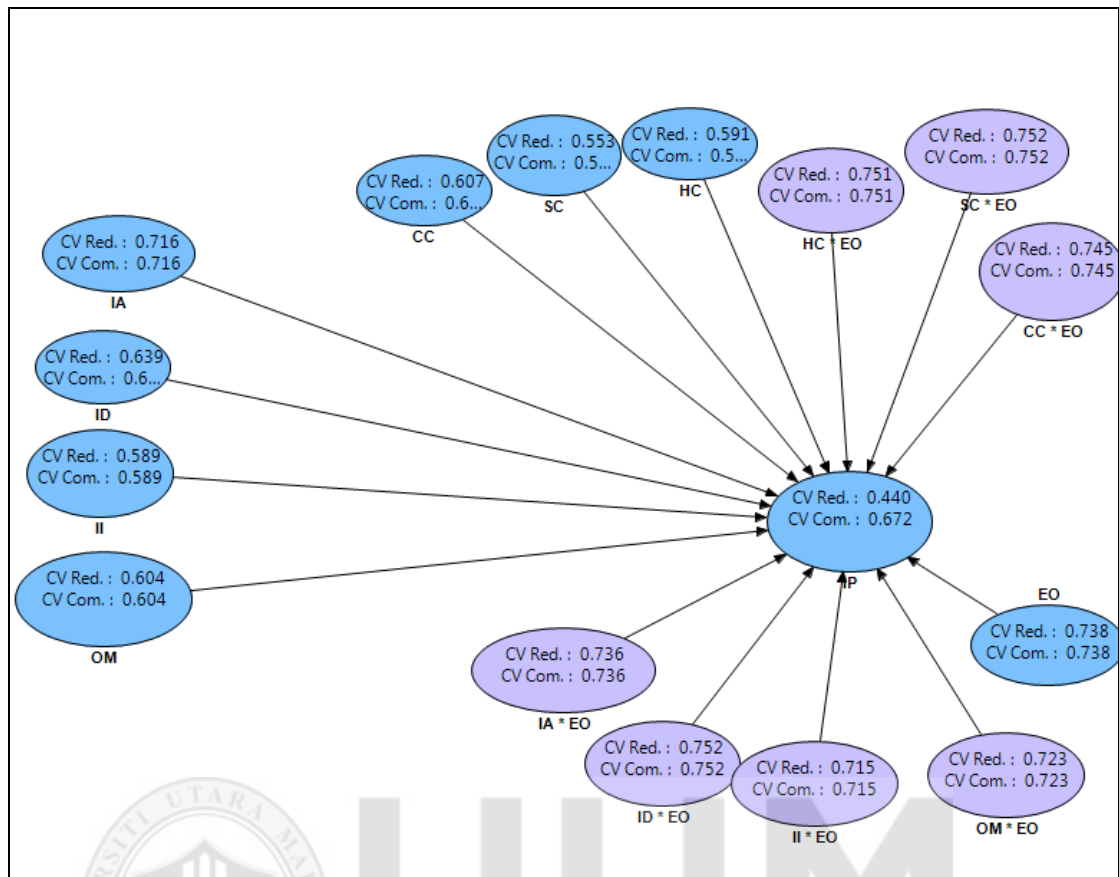


Figure 4.7. Construct cross-validated redundancy

4.8 Summary of Findings

Table 4.17 presents summary of results of all hypotheses as postulated in the previous sections. As for the direct relationship, five hypotheses were supported. Structural capital and information interpretation were not significant when tested against innovative performance.

Table 4.17
Summary of Hypotheses Testing

Hypothesis	Statement	Finding
H1a	There is positive relationship between human	Supported

	capital and innovative performance	
H1b	There is positive relationship between structural capital and innovative performance	Not Supported
H1c	There is positive relationship between customer capital and innovative performance	Supported
H2a	There is positive relationship between informational acquisition and innovative performance	Supported
H2b	There is positive relationship between information distribution and innovative performance	Supported
H2c	There is positive relationship between information interpretation and innovative performance	Not Supported
H2d	There is positive relationship between organizational memory and innovative performance	Supported
H3a	Entrepreneurial orientation moderates the relationship between human capital and innovative performance	Not Supported
H3b	Entrepreneurial orientation moderates the relationship between structural capital and innovative performance	Not Supported
H3c	Entrepreneurial orientation moderates the relationship between customer capital and innovative performance	Supported
H4a	Entrepreneurial orientation moderates the relationship between information acquisition and innovative performance	Not Supported
H4b	Entrepreneurial orientation moderates the relationship between information distribution and innovative performance	Not Supported
H4c	Entrepreneurial orientation moderates the relationship between information interpretation and innovative performance	Not Supported
H4d	Entrepreneurial orientation moderates the relationship between organizational memory and innovative performance	Not Supported

Table 4.18 indicates which dimensions of intellectual capital and organizational learning dimensions that is most important predictor when tested against innovative performance. Based on Table 4.18, the most important predictor of innovative performance is customer capital and the least important predictor of innovative performance is structural capital.

Table 4.18

Descending order the most influential of the intellectual capital and organizational learning dimensions to innovative performance

Hypothesis	Relation	Beta
H1c	Customer Capital -> Innovative Performance	0.297
H2a	Information Acquisition -> Innovative Performance	0.291
H2d	Organizational Memory -> Innovative Performance	0.194
H1a	Human Capital -> Innovative Performance	0.152
H2b	Information Distribution -> Innovative Performance	0.139
H2c	Information Interpretation -> Innovative Performance	-0.043
H1b	Structural Capital -> Innovative Performance	-0.091

4.9 Conclusion

This chapter has discusses the use of PLS path modeling to test the research model. It assessed the significance of the path coefficients and presented the major findings. Discussions of the findings, the implications of the study, limitation and suggestions for future research are discussed in the next chapter, Chapter Five.



CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter discusses the findings of the study in light of the literature reviewed on innovative performance and the hypotheses developed in Chapter 2. The study explains and extends previous research on innovative performance. The results, as reported in Chapter 4, are discussed in the sections below. The chapter concludes with a discussion on the implications of the study, its limitations and directions for future research.

5.2 Summary of the Findings

The main objective of the present study is to examine the relationship between intellectual capital such as human capital, structural capital and customer capital; organizational learning such as information acquisition, information distribution and information distribution, organizational memory and innovative performance. The study also investigates the role of entrepreneurial orientation as a moderator in the relationship between all the intellectual capital and organizational learning dimensions and innovative performance.

Smart PLS was conducted to test both the direct and indirect relationships of the 14 hypotheses developed in this study. In regard to the direct relationship between exogenous latent variables and endogenous latent variable, five out of seven hypotheses (H1a, H1c, H2a, H2b, and H2d) tested were supported. The findings from

the PLS path model indicate that human capital, customer capital, information acquisition, information distribution and organizational memory are significantly and positively related to innovative performance.

With regard to entrepreneurial orientation as a moderator in the relationship between exogenous latent variables and the endogenous latent variable, seven hypotheses (H3a, H3b, H3c, H4a, H4b, H4c and H4d) were proposed. However, only one hypothesis (H3c) is supported. Specifically, entrepreneurial orientation is found to moderate the relationship between customer capital and innovative performance.

5.3 Discussions

5.4 Intellectual Capital and Innovative Performance

The first objective of this study is to examine the relationship between intellectual capital and innovative performance. In this study, intellectual capital was measured by three dimensions namely, human, structural and customer capital. Overall, intellectual capital was found significantly positively correlated with innovative performance. The current findings were in-line with previous studies that test the relationship between intellectual capital and innovative performance in the SMEs context (Agostini et al., 2017; Halim et al., 2015; Halim et al., 2014; Leitner, 2015)

Reasons why intellectual capital was found positively significantly related to innovative performance might be due to the ability of the managers or owners of SMEs to manage performance of the organization. Intellectual capital is said to have combined resources (human capital, structural capital and customer capital) that can

facilitate the successful deployment of innovative performance in SMEs. Human capital for instance, possess resources such as competencies, skills and expertise that are needed to manage and produce innovation. While, structural capital has the resources that is needed to manage knowledge and organize it through the infrastructure of SMEs. Finally, customer capital has the resources that are related to managing the external relations of SMEs needed to facilitate their work in the production of innovation.

However, when further analysis were conducted, only human and customer capital dimensions of intellectual capital were found positively related to innovative performance. As discuss earlier, human capital possess the resources which are important for successfully achieving innovative performance. Even though the SMEs have a very high technology and up to date machinery, the human is actually driving the innovative effort. If the managers or owners of the SMEs failed to commit or engage with the innovative activities, the innovative performance of the company will not be achieved.

In terms of customer capital, the results indicate that Jordanian SMEs do acknowledge the importance of knowledge that is embedded in their customers, suppliers, the government or related industry associations in achieving their innovative performance. For example, feedback that they received from their customers, suppliers, partners and shareholders help the SMEs to utilize their skills, capabilities, information, investments and resources in developing new products with less cost. Therefore, building a good relationship with the customers, suppliers, partners and

shareholders are seen to have positive influence on the SMEs' innovative performance.

In this study, structural capital was found not related to innovative performance. One possible reason for this might be because of the simple structure that most of the SMEs had. These findings are consistent with past research where Leitner (2015) found that structural capital was not related to the performance of product innovation in Austrian SMEs.

As defined by Chen et al., (2004), structural capital can be categorized into company culture, organizational culture, operational process, information system and organizational learning. Since, most of the SMEs have simple structure, it does not contribute much in achieving their innovative performance. Based on their profile information, it was found that 35.1% of the total SMEs is small enterprises (5-19 employee), 38.7% is aged less than 10 years and 24.1% is individual ownership. These information indicate that Jordanian SMEs especially those small enterprises need to first improve their structural capital if their want to increase and improve their level of innovative performance.

Compared to those without effective structural capital, SMEs that have strong structural capital helps to improve the efficiency of knowledge management, construct sharing and communication of culture that can improve innovative performance. Therefore, a well-developed structural capital provides a good environment for rapid knowledge sharing, collective knowledge growth, shortened lead times, and a higher level of employee productivity.

5.3 Organizational Learning and Innovative Performance

The second research objective of this study is determine the relationship between organizational learning and innovative performance. For this study, organizational learning is measured by information acquisition, information distribution, information interpretation and organizational memory. Overall, organizational learning was found positively significantly related to innovative performance. The current findings provide support for previous studies on organizational learning and innovative learning among the SMEs (Beyene et al., 2016; Comlek et al., 2012; Fernandez-Mesa & Alegre, 2015; Salim & Sulaiman, 2011).

One possible explanation for this finding may be due to innovation is intensive and involve continuous process of a knowledge that entirely depends on organizational learning (individual and group learning). In the context of SMEs, acquiring new knowledge is considered necessary especially for generating new ideas and usage of it is the part of learning culture. Thus, SMEs that are able to specify which knowledge is necessary to develop new products and process and make available those knowledge to their employees helps employees to achieve the innovative performance.

Further analysis showed that only three of the organizational learning dimensions (information acquisition, information distribution and organizational memory) were found positively significantly related to innovative learning. This significant relationship between information acquisition and innovative performance could be

The result of the present study revealed that the information distribution was positively related to innovative performance. Generally, the significant relationship between information distribution and innovative performance could be due to the practices and activities that information distribution help SMEs members to share and transfer their individual-level learning to the organizational-level to improve innovative performance. Managers should hold meetings periodically to inform all the employees, about the latest innovations and share it among the different fields of company (the best practices, new techniques, new technology and new methods to improve existing/new products and process) which are acquired from different resources. In addition, managers should find an appropriate mechanism to review the employees' suggestions, because of the importance of feedback to enter any new technology or any problems that need to be solved by innovative solutions. However, innovation in SMEs is achieved through the ability of its managers to learn new knowledge and share it to employees faster than the competitors timely.

In this study, organizational memory was positively related to innovative performance.. One possible explanation for this finding might be due to organizational memory consider as final stage in the organizational learning process, so it is important for SMEs to own and use updated databases to keep current acquired knowledge and experience to use it later. organizational memory categorized into two namely storing and retrieving knowledge, and computer-based, hence, these techniques motivate and regulate the level of innovation of SMEs performance systemically. Innovation needs to update networks and internal communications which increase connections between managers and employees , also between management of SMEs and other external companies such as: internet, faxes and

telephones, as well as updating computers and databases in order to save the flow of knowledge. Additionally, in current study, that indicated the positive relationship between organizational memory and innovative performance is achieved through finding knowledge administration system which make work easier for the employees and performance of SMEs.

Lastly, in this study, information interpretation was not related to organizational learning. One possible explanation for this may be because of information interpretation is summarized to the commitment of managers of SMEs and employees to learning which has impact on remaining of innovative performance. There is lack commitment in all the members of Jordanian SMEs to share the same aims, knowledge and experience of firms to others. In addition, SMEs should develop the internal rotation programs to facilitate the shifts of the employees from one department or function to another. Innovation needs more commitment to learning to use and share acquired knowledge to continuous improvements.

There is another possible explanation for this situation that information interpretation focus to teamwork to make it a common practice. The current findings showed that weakness of work team in SMEs, because it is small sized and limited numbers of employees, so innovation needs teamwork, integration of all efforts and exchange of experiences through close communication between them to achieve duties. The present finding of study showed that organizational- level learning has more direct impact than individual-level learning on innovative performance. Therefore, all Jordanian SMEs need to focus on information interpretation stage in organizational learning process.

5.4 Entrepreneurial Orientation as a Moderator in the Relationships between Intellectual Capital and Innovative Performance

Entrepreneurial orientation was tested as moderator in the relationship between intellectual capital dimensions (human capital, structural capital and customer capital) and innovative performance. In this study, entrepreneurial orientation refers to the willingness of the firm towards adopting innovative activities and taking risks to come up with new products / services and to introduce new markets and proactively make a move prior to its competitors in availing of new opportunities in the market. Though it was hypothesized that entrepreneurial orientation moderates the relationship between all the intellectual capital dimensions and innovative performance, the current findings found that entrepreneurial orientation only moderates the relationship between customer capital and innovative performance. The findings indicate that customer capital is stronger in influencing innovative performance when entrepreneurial orientation is highly adopted by the SMEs.

One possible explanation for this finding might be because the knowledge that embedded in the customers, suppliers, government and related industry associations can be highly utilized when SMEs is focusing on encouraging their employees towards adopting innovative activities and taking risks to come up with new products / services, and thus, increase the SMEs innovative performance.

Another possibility might be related to behavior toward engaging in entrepreneurial activities. Entrepreneurial activity may come from customer needs and their feedback that reflect on product development and innovation. Entrepreneurial orientation is

reinforced by company's ability to satisfy customers' demand, as well as flexibility in handling with customer feedback and complaints to improve their products and company. Understanding customer demand and expectations together with short- and long-term planning of the structural changes needed to design and manufacture products that meet those needs and expectations are personal abilities of entrepreneurs that contribute significantly to innovation. As a result, entrepreneurial orientation reinforces customer loyalty through its satisfaction with the company's response to its complaints.

Furthermore, the strong external relationships between SMEs' and its networks such as customers, shareholders, strategic partners and government can enhance the innovative performance. For example the company has close relationship with customers is a plentiful source of entrepreneurial ideas to develop their products. Besides that, the relationship with the government also important to the SMEs. This due to the policies created by the Jordan government can drive the future directions of the SMEs. For example the government promotes a culture of entrepreneurship to develop skills and abilities to create innovation. The government always encourages small businesses to adopt a culture of entrepreneurship by creating support and assistance programs (e.g., Capacity Enhancement Programs for SMEs, Entrepreneurial Skills Development Programs (ESDP)).

However, the current findings found that entrepreneurial orientation did not moderate the relationship between human capital and innovative performance. In other words, the findings indicate that by providing an environment that encouraged employees to adopt innovative activities and to take risk did not increase the influence of individual

knowledge, skills, abilities and experiences on innovative performance. As argued by Alpkhan et al., (2010), employee who have the knowledge, skills, abilities and experiences may automatically engaging with the innovative activities even if the SMEs did not provide the environment. They will use their knowledge, skills, abilities and experiences to come out with innovative product that is demanded by the customers, suppliers, government and related industry associations.

Another possible explanation might be due to SMEs' managers are more focusing on the external environment such as customer capital compare to internal environment which includes human capital. The focus of managers on customers to meet their demands in terms of product development are as considered to be their first priority, compared to their internal human capital.

Apart from that, SMEs may also lack of the entrepreneurial skills due to small human capital as compared to large companies. As highlighted by Jusoh, Ziyae, Asimiran, and Kadir (2011), entrepreneurial skills of SMEs' employees are part of the human capital which include knowledge management, technical skills, leadership skills, building teamwork and financial skills that help an entrepreneur in undertaking risk-taking propensity initiatives. These entrepreneurial skills remain a weakness in Jordanian SMEs that is a crucial characteristics that an entrepreneur should possess for innovations of SMEs.

Another possible explanation might be related to the SMEs' manager ability in managing human capital. Because of poor backgrounds, less knowledge, less experience, and less education and therefore to generate new and novel combinations

of existing technology and knowledge to create innovation, and as a result new products (Chahal & Bakshi, 2015). Lastly, entrepreneurship requires distinctive characteristics of managers which consists of risk-taking, innovativeness, and proactiveness that motivate to fully fulfillment employees in order to create higher levels of innovative performance of SMEs.

Similarly, entrepreneurial orientation did not moderate the relationship between structural capital and innovative performance. Structural capital is all the non-human storehouses of knowledge in organizations such as databases, organizational charts, process manuals, strategies, routines and anything that the firm perceives to be a higher value compared to its material value. Therefore, providing the environment that encouraged employees to be innovative and risk taker did not influence the databases, organizational charts, process manual, strategies and routines that can lead to innovative performance.

Another possible explanation is that the financial problems faced SMEs are considered as main obstacles to the motivation of entrepreneurs and their orientation to innovation. Financial problems maximizes the obstacles for innovation to delay decision-making, development of infrastructure and their business experience, together with their knowledge systems. Jordanian SMEs still have limited capital where small enterprises have assets do not exceed JD1 million and its annual sales do not exceed JD1 million, while medium enterprises have assets are from JD1-3 million and its annual sales fall from JD1-3 million (Central Bank of Jordan , 2017).

5.5 Entrepreneurial Orientation as a Moderator in the Relationships between Organizational Learning and Innovative Performance

Entrepreneurial orientation was also tested in the relationship between all the organizational learning dimensions (information acquisition, information distribution, information interpretation and organizational memory) and innovative performance. It was predicted that entrepreneurial orientation moderates the relationship between all the organizational learning dimensions and innovative performance. However, the current findings show the opposite. Entrepreneurial orientation did not moderate the relationship between all the organizational learning dimensions and innovative performance. One possible reason for this might be because the underlying activities involved in entrepreneurial orientation and organizational learning might be similar. In other words, there is a similarity in the process of organizational learning and entrepreneurial orientation in terms of acquisition for knowledge to development of products in SMEs. The problem may be what type of knowledge is required and whether it is appropriate that depends on the abilities of employees to bring the appropriate information to increase level of innovation in SMEs.

Even though the SMEs do not focusing on knowledge embedded in the customers, suppliers, government and related industry associations, they do focus on acquisition, distribution and dissemination of information and knowledge among the employees for product development, and this seems increase SMEs innovative performance. Thus, the introduction of entrepreneurial orientation did not impact much on organizational learning that can increase the innovative performance of the SMEs.

Another possible explanation might be due to lack of entrepreneurial orientation culture among Jordanian SMEs which is important in exploring the learning opportunities in SMEs. Although, the percentage of respondent SMEs is located in Amman (82.5%) which is indicated that entrepreneurial orientation culture only focusing by Jordanian government. Entrepreneurial orientation culture can be translate through the prevailing norms, a strong commitment to learning, an open-minded mentality, and a shared vision within the organization (Li et al., 2008).

Apart from that, the willingness of SMEs to scan their external environments was evidenced as a main reason that entrepreneurial orientation served to facilitate information acquisition and distribution (Kreiser, 2011). Entrepreneurial orientation can be play through its impact on capabilities of SMEs that lead to organizational learning and outcomes related to innovation. Capabilities can be utilized to promote the acquisition, integration, and exploitation of knowledge.

Another possible explanation might be because of the weak of social relationships and interpersonal networks of employees which according to Wang (2008) is important for entrepreneurial orientation in SMEs. Majority of the SMEs in Jordan have small number human capital (5-99 employee) compared to large firms. Employees will be encouraged to build their relationships from the external environment resources through constructing their social relationships and interpersonal networks with customers, suppliers, and competitors to access to diverse information thus benefiting in gathering their information to further discover entrepreneurial opportunities. In other words, appropriate contexts will be created to enable employees to obtain and assimilate new entrepreneurial information and activates in SMEs. But this not

happen in Jordanian SMEs' employees. Based on descriptive statistics, the mean for entrepreneurial orientation was considered low at 1.99 which indicates that Jordanian SMEs are poor in terms of level of entrepreneurial orientation.

Lastly, because there are lack of data that indicate the level of innovative performance in each type of industry of SMEs, the focus of this study is on all types of SMEs. Thus, the ineffectiveness of entrepreneurial orientation as moderator might not be appropriately captured as compared to focusing on only highly innovative performance SMEs. Perhaps the results with regard to entrepreneurial orientation will be more significant if the study is focusing on the highly innovative performance SMEs .

5.6 Research Implications

The findings of the study have theoretical and practical implications. They are discuss next.

5.6.1 Theoretical Implications

Firstly, the findings of this study are partially supported and confirmed the Resource-based View theory (Barney, 1991). According to the RBV theory, the heterogeneous resources (intellectual capital and organizational learning) are characterized as valuable, rare, inimitable and non-substitutable (VRIN) to obtain and maintain competitive advantage of firm that could lead to enhanced SMEs performance. This study has contributed to enriching the body of knowledge on literature of intellectual

capital, organizational learning and innovative performance within SMEs context. RBV theory indicated that all of recourses are suitable for competitive advantage of SMEs. However, the current findings showed that not all resources contribute to competitive advantage for innovative performance. Thus, due to the empirical evidences from the study proved that structural capital and information interpretation are not significant to achieve innovative performance.

The theoretical framework of this study was based on the prior empirical evidences and theoretical gaps identified in the literature. RBV theory was used to explain similar relationship in past studies (Al-Swidi, 2012; Dada &Fogg, 2014; Daou et al., 2013; Gunday et al., 2008; Han & Li, 2015; Jian& Wang, 2013; Kreiser, 2011; Luca et al., 2014; Wang &Ellinger, 2011; Wu et al., 2008). Based on the theoretical gaps, this study extend the body of knowledge by adding entrepreneurial orientation as moderator. Past studies have shown the importance role of entrepreneurial orientation as moderating in improving innovation ((Wu et al., 2008) and firm performance (Richard et al., 2004; Li, Zhao et al., 2008 Wales et al., 2013b). Therefore, the current study contributes to the body of knowledge on innovative performance by including entrepreneurial orientation as moderating variable. However, the finding revealed that entrepreneurial orientation only can enhance innovative performance under the condition of high customer capital in SMEs context.

5.6.2 Practical Implications

The results of this study offer several suggestions from a practical perspective to management of SMEs. The SMEs can use the findings to implement strategies to help

managers and owners to achieve a good innovative performance by considering the factors such as intellectual capital, organizational learning and entrepreneurial orientation that increase to innovative performance.

The results of this empirical study could also be valuable for top managers of Jordanian SMEs that intend to gain long-term competitive advantages, through product or process innovation. As investment in intellectual capital contributes significantly to innovative performance, managers or owners of SMEs should manage the qualified professionals by creating continuous technical training that include operating of machines; developing managerial skills such as decision making and knowledge sharing within the organization and improving technical infrastructure (e.g. advance computerized systems, internet coverage, quality control systems) which necessary for the operation in SMEs.

The study indicates that human capital and customer capital had a positive impact in enhancing innovative performance among SMEs. Therefore, management of the SMEs need to continually improving their employees' skills, knowledge and expertise by creating new up-skilling training programs. This can be done by encouraging the employees to attend short-term courses offered by various technical universities and linking it with incentives as a way of motivating them.

In terms of customer capital, indicates that the need for Jordanian SMEs managers to build new linkages and joint agreements with customers, suppliers, clients, partners and other external stakeholders. With new partnerships (e.g. consulting companies, cooperative societies of local marketing, small business development foundations,

non-governmental organization programs in enhancing competitiveness), the SMEs in Jordan can enhance their market share by penetrating new markets and develop infrastructure and facilitate technology transfer such as collaboration with local and international investors that can strengthen the reputation and image of SMEs. Apart from that, SMEs' managers also need to consider providing their employees with knowledge storage for future use either in a database or systems designed for storage, or in the form of rules, procedures or other systems for later use.

Another interesting finding found in this study is the role of information acquisition, information distribution, and organizational memory on innovative performance among SMEs. The findings of the study suggest the importance of acquiring new knowledge and sharing of knowledge. Therefore, SMEs managers need to find ways of encouraging their employees in seeking new knowledge that can help in improving the innovative performance. At the same, they also need to provide a platform and attractive incentive for employees to share their knowledge with others. Providing the employees with various internal training programs, setting up joint education programs with universities (e.g. short-term courses), and hosting experts to transfer new knowledge are among the initiatives that can be taken by the SMEs.

In terms of the role of entrepreneurial orientation as a moderator, it was found that SMEs with high perception of customer capital in higher entrepreneurial orientation environment tend to have higher innovative performance. Therefore, to develop an entrepreneurial orientation culture, the SMEs managers must be willing to adopt innovative activities and taking risks to come up with new products / services and to introduce new markets and proactively make a move prior to their competitors in venturing into new market opportunities.

In summary, the prescriptions discussed above are suggestive of the types of actions that SMEs' management and government can take to enhance innovative performance. The research results suggest the need for human and customer capital, information acquisition, information distribution and organizational memory to enhance innovative performance of SMEs. Apart from that, SMEs management also needs to consider giving the necessary entrepreneurial orientation for its firms as a way of addressing innovative performance.

5.7 Limitations and Recommendations for Future Research

Though the current study has supported several proposed hypotheses between the exogenous and endogenous variables, there are limitations in the design of this study that might influence the interpretation and generalizations of these findings. These issues are discussed next.

First, the sample in this study was limited to small and medium sized enterprises and it does not include large and micro firms. Even though the aim of the study is to examine the innovative performance among SMEs, it is also interesting to uncover the innovative performance in other types of industries and from different sizes as there is a low level of innovative performance in Jordan. Therefore, future research may want to consider of extending the current study by exploring the innovative performance in other types of industries and with different company sizes.

Second, the present study was cross-sectional as it was not practical to conduct a longitudinal study. A cross-sectional design is simple, inexpensive and allows for the collection of data in a relatively short period. Although, there are advantages to using a cross-sectional design, this method offers limited information regarding changes in the level of innovative performance. In the future, it may be worth investigating the issues of innovative performance using a longitudinal study. Moreover, this study used a single instrument for data collection in the form of a questionnaire survey. Perhaps, in the future, it may be worth to supplement interviews with surveys for in-depth data on innovative performance among SMEs in Jordan.

In summary, while there are some limitations associated with the approach used here and given the exploratory nature of the study, the results of this study provide useful findings that should be of interest both researchers and practitioners.

5.8 Conclusions

The aim of this thesis was to examining the innovative performance among SMEs in Jordan. The main concern of this thesis is the relationships between intellectual capital, organizational learning, and innovative performance amongst SMEs. Also, the thesis tested the moderating effect of entrepreneurial orientation on the relationship between intellectual capital and organizational learning and innovative performance.

The results indicate that both intellectual capital and organizational learning were positively related to innovative performance. However, structural capital and information interpretation were found negatively related to innovative performance.

An important contribution made by this thesis is the moderating role of entrepreneurial orientation on the relationships between intellectual capital, organizational learning, and innovative performance amongst SMEs. The current findings indicate that entrepreneurial orientation did not moderate the relationship between intellectual capital, organizational learning and innovative performance. The results also revealed that entrepreneurial orientation only moderate the relationship between customer capital and innovative performance.

In addition to the theoretical contributions, the results from this study provide some important practical implications to organizations and managers. Furthermore, on limitations of the current study, several future research directions were drawn. In conclusion, the present study has added valuable theoretical, practical, and methodological to the body of knowledge in organizational research particularly management.

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APPENDIX A – OVERVIEW OF SMEs IN JORDAN

In Jordan, SMEs significantly contributes to the economy and they are deemed to complement large projects, particularly in the industrial sector. The importance of SMEs in Jordan likes in their increased growth compared to their larger counterparts (World Bank, 2013). Jordanian SMEs also absorb a great proportion of the workforce and unemployment to bring about a balanced growth in the country owing to its extensive distribution and limited resources (Ministry of Industry, Trade and Supply, 2014a).

However, there has been no consensus as to a universal definition of Small and Medium Enterprises, aside from the generally acknowledged traits including the number of employees in the firm that should be under 100 employees or 250 employees, limited levels of revenues and assets. According to the Multilateral Investment Guarantee Agency Report (MIGA, 2014), categorized SMEs under organizations that have not more than 300 employees, and owning lower than U.S.\$15 million in assets, and profiting lower than U.S.\$15 million yearly (World Bank, 2014). It is notable that the definition accommodates factors like the number of employees, capital and revenues that identifies whether or not the firm is an SME. The premise behind the definition is to enable industries dissimilarity. For instance, a firm that manufactures garments may employ a significant number of employees but its revenues may be lower than an R&D firm that employs fewer employees (Young Entrepreneur's Association, 2011).

In the context of the MENA region (Middle East and North Africa), SMEs differ throughout the region in light of the workforce size. Some of the proposed definitions are provided in Table 1.

Table 1

Proposed Definitions of SMEs across MENA

Country	Micro	Small	Medium
Egypt	1 to 4 employees	5 to 14 employees	15 to 49 employees
Lebanon	1 to 9 employees	10 to 49 employees	50 to 99 employees
Oman	1 to 5 employees	6 to 20 employees	21 to 100 employees
Jordan*	1 to 4 employees	5 to 19 employees	20 to 99 employees
UAE	1 to 9 employees	10 to 49 employees	50 to 99 employees
Tunisia	1 to 9 employees	10 to 49 employees	50 to 99 employees

Source: Dababneh R. &Tukan F. (2007). * Department of Statistics (2012)

More specifically, the Jordan National Human Development Report (2011), SMEs with the inclusion of micro enterprises cover enterprises that employ lower than 100 employees (Ministry of Planning and International Cooperation, 2011). The Prime Minister endorsed the industrial SMEs definition in September 2005 as a national standardized definition to be employed in all the governmental departments. The definition reads – small enterprises are those firms that have 10-49 employees and a registered capital of over JD30,000, while medium enterprises have 50-249 employees and a registered capital higher than JD30,000 (Dababneh &Tukan, 2007).

Moreover, the Central Bank of Jordan also provided a definition on 13th January 2011 and it reaffirmed the definition in the SME Guide (2017) that SMEs should not be any of the following companies – public shareholding company, insurance company, brokerage firm, while small businesses should have assets that are lower than JD1 million or annual sales lower than JD1 million, and employees number 5-20. On the other hand, medium companies should have assets between JD1-3 million or annual sales between JD1-3 million, employing workers numbering from 21-100 (Central Bank of Jordan, 2017; Qandah, 2012).

Moreover, according to the Department of Statistics (2012), in its annual industrial survey, small firms have 5-19 employees, while medium ones employ 20-99 employees (Department of Statistics, 2012). It is similar to the definition of the Royal Scientific Society (RSS) in Jordan (Ghezawi, Baker, Qatarneh, Khasawneh & Alluhaymaq, 1989) . In the present study, the definition of SMEs adopted is the one provided by the Jordanian Ministry of Industry and Trade, the Central Bank of Jordan, the Royal Scientific Society (RSS) and Department of statistics where SMEs are firms employing 5-99 workers.

The Issues of SMEs in Jordan

It is evident that SMEs play a key role in bringing about sustainable growth and development as based on the statistics reported by the Ministry of Industry, Trade and Supply (2014a), SMEs constitute 95% of the national economy components and ultimately contributes to 40% of the GDP, and they employ approximately 70% of the employees in the market in Jordan (Ministry of Industry, Trade & Supply, 2014b). On

the other hand, very small enterprises constitute 89.21% of the total number of firms in Jordan, and small ones constitute approximately 8.80%, where 1.67% constituted medium-sized enterprises. SMEs employ 45.2% of the whole labor force in the country (Young Entrepreneur's Association, 2011).

The importance of the entrepreneurship in Jordanian SMEs has been emphasized in Jordan Vision 2025 Plan. According to the plan, there is lack of jobs growth in SMEs compared to their large counterparts, and the job opportunities in the public sector is showing a decline, resulting in privatization programs, and the establishment of government policies in an attempt to minimize the deficit in the country's budget (Ministry of Planning and International Cooperation, 2015).

Moreover, Jordanian SMEs take part in different economic activities like trade, services, manufacturing and agriculture. Based on the report published by the Jordan National Human Development Report (2011), trade and services dominate the SMEs activities constituting 85% of their total activities in 2006 alone. In line with this contention, the trading sector is predominantly composed of SMES, employing approximately 92.7% total employees. The extensive variety of SMEs existing in the trade sector reflects their provision of services to the local market. Such a market is characterized by limited customer demands that enable easy entry, labor-based method, with the focus on small scale personal finances. However, SMEs in the manufacturing sector do not play the same role as the technology and investments level required is dramatically increased (Ministry of Planning and International Cooperation, 2011).

Also, in Jordan, the SMEs sector is not the top contributor of government taxes with the current data showing that almost half of SMEs earn lower than JD5,000 annually and are below the boundary of where sales tax and income are made compulsory (Young Entrepreneur's Association, 2011).

Added to the above, the density of SMEs (enterprises per 1,000 person) in Jordan, is considerable lower compared to the average in lower-middle income countries, and is approximately half of that of higher income ones. The highest concentration is located in Amman, Zarqaa and Irbid governorates and they are the high performers based on human development indicators. Jordanian SMEs are mostly located in Amman, Zarqa and Irbid, with all three constituting more than 86.6% of SMEs – over 80% of the employment in the country, and more than 70% of the population is lower than a third of the geographic area of the country (Ministry of Planning and International Cooperation, 2011). The number of Jordanian SMEs is presented in Table 2 and Table 3 by cities and employees category.

Table 2
Number of SMEs in Jordan by Cities and Employees Category

City	Employees Category		Total	Percentage %
	Small 5-19	Medium 20-99		
Amman	6997	2497	9494	*75.9
Irbid	746	177	923	*7.4
Zarqa	619	191	810	*6.5
Karak	86	43	129	1.0
Aqaba	197	84	281	2.2

APPENDIX A

Ajlun	32	16	48	0.4
Ma'raq	119	40	159	1.3
Jarash	69	14	83	0.7
Balqa	239	76	315	2.5
Tafiela	20	10	30	0.2
Ma'an	95	25	120	1.0
Madaba	81	27	108	0.9
Total	9300	3200	12500	100%

Source: Social Security Corporation, (2016). Annual Report 2015. Amman, Jordan.

* The highest percentage of SMEs in governorates of Jordan.

Table 3
Number of SMEs in Jordan by Cities and Employees Category

Cites	Employees Category			Total	Percentage
	Micro 1-4	Small 5-19	Medium 20-99		
Amman	16701	6997	2497	26195	60.7
Irbid	3926	746	177	4849	11.3
Zarqa	2842	619	191	3652	8.5
Sub-Total	23469	11227		34696	80.5
The Rest of the Cities	7122	938	335	8395	19.5
Total	30591	9300	3200	43091	100%

In the context of emerging and developing countries, SMEs are faced with issues relating to negative human capital quality and the lack of institutional capabilities and are hence going through a phase of deficient intellectual capital (Daou et al., 2013). On the basis of Jones and Macpherson's (2006) study, SMEs that operate in mature sectors often do not have the necessary skills and knowledge for the adoption of current management methods and new technologies.

The top significant barriers in Jordan when it comes to employee training in SMEs according to the Jordan Enterprise Development Corporation (JEDCO) are high costs in absolute and relative terms, issues of employee replacement (while the employee is in training), challenges in searching for suitable trainers/courses, and the potential of turnover. The last barrier holds true particularly in cases of general training, where the employee is lured by other employers who can leverage the former's skills at a higher pay (Jordan Enterprise Development Corporation, JEDCO, 2013). In other words, some employers consider it cheaper to hire skilled employees who are already well-trained than providing training to an employee that has had no training. It can thus be inferred that while SMEs act as good job providers, they are not sufficient providers of activities that meet training needs and upgrade their employees' knowledge levels (Al-Mahrouq, 2010).

Moreover, Magableh et al. (2011) stated that SMEs success are different from one country to the next and from one sector to another. In this regard, such factors are categorized into two namely external and internal factors, with the former being supporting economic, social and political environment, funds and legislations

availability, and the existence of active local and international institutions. The latter covers training, entrepreneurship, skills of employees and management.

Prior studies show that the SMEs operation duration from 3 years and above were more capable of displaying innovative performance (Al-Hyari, Al-Weshah & Alnsour, 2012; Ismail et al., 2013; Madhoushi et al., 2011; Wang & Ellinger, 2011). The Department of Statistics (2012) reported that active and operating SMEs numbered 12,698 for 3 years and over (established in the years from 1960-2011).



APPENDIX B – CERTIFICATION OF AUTHORIZED TRANSLATION OFFICE

	مكتب سكاينة للترجمة المعتمدة SUKAINA AUTHORIZED TRANSLATION OFFICE
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TO WHOM IT MY CONCERN

This is to certify that we *Sukaina Authorized Translation Office (SATO)*, located in Jordan, Amman, Jabal Al-Hussein, have translated from English into Arabic the questionnaire entitled “*EXAMINING INNOVATIVE PERFORMANCE AMONGST SMEs IN JORDAN*” for Mr. *Mohd Abdal Karim Hussien Alzuod* who will submit it to the *University Utara Malaysia*.

With Best Regard,



Manager
Sukaina Authorized Translation Office
(SATO)




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APPENDIX C - QUESTIONNAIRE



A STUDY ON INNOVATIVE PERFORMANCE

Dear Participant,

Thank you for agreeing to participate in this research.

I would appreciate it if you could answer the questions carefully as the information you provide will influence the accuracy and the success of this research. It will take no longer than 30 minutes to complete the questionnaire. All answers will be treated with strict confidence and will be used for the purpose of the study only.

If you have any questions regarding this research, you may address them to me at the contact details below.

Thank you for your cooperation and the time taken in answering this questionnaire.

Yours sincerely,
Moh'd Abdal Karim Hussein Alzuod
PhD Candidate
University Utara Malaysia (UUM)
Tel: 0060173909185 (Malaysia)
Tel: 00962772235848 (Jordan)
Email: mzuody@yahoo.com

Respondent ID (for researcher's usage only)

SECTION ONE

DIRECTION: Please read each of the following items and indicate whether you agree or disagree with each of the statement. Please indicate your choice by ***circling*** the ***number*** in the range given

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. My company has high percentage of new products in the existing product portfolio	1	2	3	4	5
2. My company has high number of new product / service projects	1	2	3	4	5
3. My company has the ability to introduce new products / services to the market before competitors	1	2	3	4	5
4. My company has introduced innovations for work processes and methods	1	2	3	4	5
5. My company has introduced quality in new products / services	1	2	3	4	5
6. My company has high number of innovations under intellectual property protection	1	2	3	4	5
7. My company has renewing the administrative system and the mind-set that is in line with company's environment	1	2	3	4	5

SECTION TWO

DIRECTION: Please read each of the following items and indicate whether you agree or disagree with each of the statement. Please indicate your choice by **circling** the **number** in the range given

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Our employees have the knowledge and competence	1	2	3	4	5
2. Our workforce have average educational level					
3. Our company support the employees by constantly upgrading their skills and education whenever each of them feels it is necessary	1	2	3	4	5
4. Instead of doing without thinking, our employees can work brightly	1	2	3	4	5
5. Our employees share their experiences and knowledge with their colleagues	1	2	3	4	5
6. Our employees share their creativity with their colleagues	1	2	3	4	5
7. Our company's overall operation procedure is very efficient	1	2	3	4	5
8. Our company quick in responding to the changes	1	2	3	4	5
9. Our company support between different departments	1	2	3	4	5

APPENDIX C

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
10. Our company's systems allow easy information access	1	2	3	4	5
11. Our company's systems and procedures are flexible and efficient	1	2	3	4	5
12. Our company's culture and atmosphere is supportive and comfortable	1	2	3	4	5
13. Our company prides itself on being efficient	1	2	3	4	5
14. A poll of our customers would indicate that they are generally satisfied with our company	1	2	3	4	5
15. Our company thrives on maintaining the most positive value added service of any firm in the industry	1	2	3	4	5
16. Our company emphasizes on our customers' wants and strive to meet with customers	1	2	3	4	5
17. Our company get as much feedback out of our customers as we possibly can under the circumstances	1	2	3	4	5
18. Our company prides itself on being market-oriented	1	2	3	4	5
19. Our company are confident of future with customer	1	2	3	4	5

SECTION THREE

DIRECTION: Please read each of the following items and indicate whether you agree or disagree with each of the statement. Please indicate your choice by **circling** the **number** in the range given

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. My company makes co-operation agreement with other companies, universities, technical colleges, etc	1	2	3	4	5
2. My company is in touch with professionals and expert technicians	1	2	3	4	5
3. My company encourages employees to join formal or informal nets made up by people outside the organization	1	2	3	4	5
4. My company asks employees to attend fairs and exhibitions regularly	1	2	3	4	5
5. My company has a consolidated and resourceful R&D policy	1	2	3	4	5
6. My company has new ideas and approaches on work performance that are experimented continuously	1	2	3	4	5
7. My company has the organizational systems and procedures that support innovation.	1	2	3	4	5

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8. My company informs all members about the aim of the company	1	2	3	4	5
9. My company holds meetings periodically to inform all the employees about the latest innovations in the company	1	2	3	4	5
10. My company has formal mechanisms to guarantee the sharing of the best practices among the different fields of the activity	1	2	3	4	5
11. My company has individuals who take part in several teams or divisions and who also act as links between them	1	2	3	4	5
12. My company has individuals responsible for collecting, assembling, and distributing internally employee's suggestions	1	2	3	4	5
13. In my company, all the members of the organization share the same aim to which they feel committed	1	2	3	4	5
14. In my company, employees share knowledge and experience by talking to each other	1	2	3	4	5

APPENDIX C

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
15. In my company, teamwork is a very common practice	1	2	3	4	5
16. My company develops internal rotation programs so as to facilitate the shifts of the employees from one department or function to another	1	2	3	4	5
17. My company offers other opportunities to learn (visits to other parts of the organization, internal training programs, etc.) so as to make individuals aware of other people or departments' duties	1	2	3	4	5
18. My company has databases to stock its experiences and knowledge so as to be able to use them later on	1	2	3	4	5
19. My company has directories or emails field according to the field they belong to, so as to find an expert on a create issue at any time	1	2	3	4	5
20. My company has up-to-date databases of its clients	1	2	3	4	5
21. My company has access to the organization's data basis and documents through some kind of network (Lotus Notes, Intranet, etc.)	1	2	3	4	5

APPENDIX C

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
22. My company keeps databases up-to-date	1	2	3	4	5
23. My company allows all the employees to have access to the organization's databases	1	2	3	4	5
24. In my company, employees consult the databases	1	2	3	4	5
25. In my company, the codification and knowledge administration system make work easier for the employees	1	2	3	4	5



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SECTION FOUR

DIRECTION: Please read each of the following items and indicate whether you agree or disagree with each of the statement. Please indicate your choice by **circling** the **number** in the range given

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. In my company, new ideas come up all the time	1	2	3	4	5
2. Continuous renewal and innovation are important for my company	1	2	3	4	5
3. Lately my company has launched many new products/ services	1	2	3	4	5
4. My company invests heavily in developing new products / services and business practices	1	2	3	4	5
5. My company often acts before the competitors do	1	2	3	4	5
6. My company aims at being at the forefront of development in our business sector	1	2	3	4	5
7. My company prefers the cautious line of action even if some opportunity might be lost that way	1	2	3	4	5
8. Bold action is necessary to achieve my company's objectives	1	2	3	4	5

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
9. In uncertain situations my company is not afraid to take substantial risks	1	2	3	4	5



SECTION FIVE

This part contains background of your company. **Please tick (√)** in the box or write your response in the space provided.

1. Total number of employees: 5-19 ☐ 20-99 ☐

2. Age of Company:

☐ 3 - 5 years

☐ 6 -10 years

☐ > 10 years

3. Ownership of the Company:

☐ Individual

☐ Partnership

☐ Limited Liability

☐ Limited Partnership

☐ Others (Please specify): _____

4. Economic Activity:

☐ Manufacturing

☐ Internal Trade

☐ Construction

☐ Services

☐ Financial, Banks and Insurance

☐ Others (Please specify): _____

THANK YOU FOR YOUR COOPERATION

APPENDIX D- THE ARABIC VERSION OF QUESTIONNAIRE



جامعة أوتارا الماليزية

دراسة حول الأداء الابتكاري

عزيزي المشارك في تعبئة هذا الإستبيان،،،

نود أن نشكرك على موافقتك للمشاركة في هذا البحث.

يرجى الإجابة على الأسئلة بعناية نظرا لأن المعلومات التي ستقدمها ستؤثر على دقة ونجاح هذا البحث. لن تستغرق تعبئة هذه الإستبانة أكثر من (30) دقيقة من وقتك؛ علماً بأن جميع الإجابات سيتم التعامل معها بمنتهى السرية وسيتم استعمالها لغايات هذه الدراسة فقط.

إذا كانت لديك أي أسئلة بشأن هذا البحث، يمكنك توجيهها إلي وفقا لمعلومات الإتصال أدناه.

نشكرك على تعاونك وعلى وقتك الذي استغرقتة للإجابة على هذه الإستبانة.

المخلص لكم،،،

محمد عبد الكريم

حسين الزيود

طالب دكتوراه

جامعة أوتارا الماليزية

هاتف رقم

0772235848

بريد الكتروني :

mzuody@yahoo.co

m

(لإستعمال الباحث فقط)

الجزء الأول

تعليمات: يرجى قراءة كل هذه البنود وكتابة إذا ما كنت توافق أو لا توافق على كل عبارة منها. يرجى إختيار الإجابة من خلال وضع دائرة حول الرقم في الحقل الملائم.

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 تمتلك شركتنا نسبة عالية من المنتجات الجديدة في مجموع المنتجات الحالية.
5	4	3	2	1	2 تمتلك شركتنا عددا كبيرا من مشروعات المنتجات/ الخدمات الجديدة.
5	4	3	2	1	3 تتميز شركتنا بقدرتها على تقديم منتجات/ خدمات جديدة للسوق قبل المنافسين لها.
5	4	3	2	1	4 قامت شركتنا بتقديم إبتكارات إبداعية فيما يتعلق بعمليات وأساليب العمل.
5	4	3	2	1	5 قامت شركتنا بتقديم منتجات/ خدمات ذات جودة عالية.
5	4	3	2	1	6 تمتلك شركتنا عددا كبيرا من الإبداعات المبتكرة المشمولة تحت حماية الملكية الفكرية.
5	4	3	2	1	7 قامت شركتنا بتجديد النظام الإداري والقالب الفكري بما يتوافق مع بيئة الشركة.

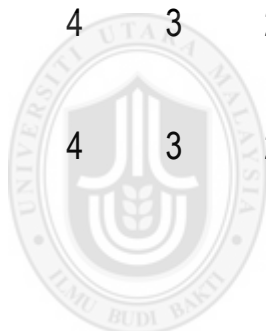
الجزء الثاني

تعليمات: يرجى قراءة كل هذه البنود وكتابة إذا ما كنت توافق أو لا توافق على كل عبارة منها.
يرجى إختيار الإجابة من خلال وضع دائرة حول الرقم في الحقل الملائم.

لا أوافق بشدة	لا أوافق	لا أوافق	محاييد	أوافق	أوافق بشدة
1	2	3	4	5	1
1	2	3	4	5	2
1	2	3	4	5	3
1	2	3	4	5	4
1	2	3	4	5	5
1	2	3	4	5	6
1	2	3	4	5	7
1	2	3	4	5	8
1	2	3	4	5	9
1	2	3	4	5	10
1	2	3	4	5	11
1	2	3	4	5	12

ومريحة.

5	4	3	2	1	13	تفتخر شركتنا بكفاءتها.
5	4	3	2	1	14	إن استطلاع آراء زبائننا يشير إلى أنهم راضون بشكل عام عن شركتنا.
5	4	3	2	1	15	تزدهر شركتنا من خلال الإحتفاظ بخدمات القيمة الإضافية الأكثر إيجابية لأي مؤسسة في هذه الصناعة.
5	4	3	2	1	16	تؤكد شركتنا على احتياجات زبائننا وتسعى جاهدة لعقد لقاءات مع الزبائن.
5	4	3	2	1	17	تحصل شركتنا على أكبر قدر ممكن من التغذية الراجعة من زبائننا بحسب الظروف المتاحة.
5	4	3	2	1	18	تفتخر شركتنا بأنها تتكيف وفقا لظروف وأوضاع السوق.
5	4	3	2	1	19	شركتنا واثقة من المستقبل مع زبائننا.



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الجزء الثالث

تعليمات: يرجى قراءة كل هذه البنود وكتابة إذا ما كنت توافق أو لا توافق على كل عبارة منها.
يرجى إختيار الإجابة من خلال وضع دائرة حول الرقم في الحقل الملائم.

لا أوافق بشدة	لا أوافق	لا أوافق	محاييد	أوافق	أوافق بشدة
1	2	3	4	5	1
2	3	4	5	1	2
3	4	5	1	2	3
4	5	1	2	3	4
5	1	2	3	4	5
6	1	2	3	4	5
7	1	2	3	4	5
8	1	2	3	4	5
9	1	2	3	4	5
10	1	2	3	4	5

- 11 هناك أفراد في شركتنا يشاركون في عدد من الفرق أو المجموعات ويقومون أيضا بدور حلقات الوصل بين تلك الفرق والمجموعات.
- 12 هناك أفراد في شركتنا مسؤولون عن جمع وحشد وتوزيع اقتراحات الموظفين داخليا.
- 13 في شركتنا، يشارك جميع أعضاء المنظمة في نفس الهدف الذي يشعرون بالالتزام نحوه.
- 14 في شركتنا، يشارك الموظفون في المعرفة والخبرات من خلال التحدث إلى بعضهم البعض.
- 15 في شركتنا، يعتبر العمل الجماعي ممارسة شائعة جدا.
- 16 تعكف شركتنا على تطوير برامج مناوبات داخلية وذلك لتسهيل انتقال الموظفين من دائرة أو وظيفة إلى أخرى.
- 17 توفر شركتنا فرصا أخرى للتعلم (زيارات لأجزاء أخرى من المنظمة، إلخ) وذلك لتعريف الأفراد بواجبات الأشخاص أو الدوائر الأخرى.
- 18 هناك قواعد بيانات في شركتنا لتخزين خبراتها ومعارفها حتى يتسنى لنا استعمال هذه الخبرات والمعارف لاحقا.
- 19 يوجد لدى شركتنا أدلة أو رسائل بريد إلكتروني يتم حفظها طبقا للمجال الذي تنتمي له وذلك لإيجاد خبير في موضوع إبداعي في أي وقت من الأوقات.
- 20 تمتلك شركتنا قواعد بيانات حديثة عن زبائننا.
- 21 تتمتع شركتنا بقدرتها على الوصول إلى قواعد البيانات والوثائق التابعة للمنظمة من خلال نوع معين من الشبكات (لوتوس

نوتس، إنترنت، إلخ).

22	تحرص شركتنا على تحديث قواعد البيانات دائماً.	1	2	3	4	5
23	تتيح شركتنا المجال لجميع الموظفين للوصول إلى قواعد بيانات المنظمة.	1	2	3	4	5
24	في شركتنا، يقوم الموظفون بالرجوع إلى قواعد البيانات للإستشارة.	1	2	3	4	5
25	في شركتنا، يعمل نظام تصنيف وإدارة المعرفة على تسهيل العمل بالنسبة للموظفين.	1	2	3	4	5



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الجزء الرابع

تعليمات: يرجى قراءة كل هذه البنود وكتابة إذا ما كنت توافق أو لا توافق على كل عبارة منها.
يرجى إختيار الإجابة من خلال وضع دائرة حول الرقم في الحقل الملائم.

لا أوافق بشدة	لا أوافق	لا أوافق	محايد	أوافق	أوافق بشدة
1	2	3	4	5	
1	2	3	4	5	في شركتنا يتم عرض أفكار جديدة طيلة الوقت.
1	2	3	4	5	التجديد والإبداع المستمران مهمان لشركتنا.
1	2	3	4	5	قامت شركتنا مؤخرا بإطلاق العديد من المنتجات/الخدمات الجديدة.
1	2	3	4	5	تقوم شركتنا بالاستثمار بشكل كبير في تطوير منتجات/خدمات وممارسات جديدة في مجال الأعمال.
1	2	3	4	5	تقوم شركتنا غالبا بالتصرف في مجال الأعمال قبل المنافسين لها.
1	2	3	4	5	تهدف شركتنا إلى احتلال موقع الصدارة من حيث التطوير في قطاع أعمالنا.
1	2	3	4	5	تفضل شركتنا انتهاج خط حذر في العمل حتى ولو أدى ذلك إلى فقدان بعض الفرص بتلك الطريقة.
1	2	3	4	5	اتخاذ إجراءات جريئة ضرورية لتحقيق أهداف شركتنا.
1	2	3	4	5	لا تخشى شركتنا من القيام بمجازفات جسيمة في المواقف الغامضة.

الجزء الخامس

هذا الجزء يحتوي معلومات عن شركتكم ، يرجى وضع إشارة (✓) في المربع أو كتابة الجواب في الفراغ المناسب .

1. العدد الكلي للعاملين 19-5 99-20

2. عمر الشركة بالسنوات

5 - 3
 10 - 6
 10 <

3. ملكية وصفة الشركة :

فردية

☐

تضامن

☐

مسؤولية محدودة

☐

توصية بسيطة

☐

أنواع أخرى _____

☐

4. نشاط الشركة الإقتصادي

الصناعات

☐

☐

التجارة الداخلية

☐

البناء

☐

الخدمات

☐

المالية والبنوك والتأمين

☐

أنواع أخرى _____



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شكرا لتعاونكم معنا

APPENDIX E1 - SPSS OUTPUT

APPENDIX E1 – RELIABILITY TEST (PILOT STUDY)

Innovative Performance

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

b.

Reliability Statistics

Cronbach's Alpha	N of Items
.827	7

Item Statistics

	Mean	Std. Deviation	N
1-My company has high percentage of new products in the existing product portfolio	4.10	.845	30
2-My company has high number of new product / service projects	4.07	.828	30
3-My company has the ability to introduce new products / services to the market before competitors	4.13	.860	30
4-My company has introduced innovations for work processes and methods	3.97	1.098	30

5-My company has introduced quality in new products / services	4.27	.450	30
6-My company has high number of innovations under intellectual property protection	1.93	.450	30
7-My company has renewing the administrative system and the mind-set that is in line with company's environment	3.17	1.147	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1-My company has high percentage of new products in the existing product portfolio	21.53	13.085	.591	.801
2-My company has high number of new product / service projects	21.57	12.668	.689	.785
3-My company has the ability to introduce new products / services to the market before competitors	21.50	13.017	.589	.801
4-My company has introduced innovations for work processes and methods	21.67	11.057	.705	.781
5-My company has introduced quality in new products / services	21.37	14.930	.656	.809
6-My company has high number of innovations under intellectual property protection	23.70	16.010	.333	.835

7-My company has renewing the administrative system and the mind-set that is in line with company's environment	22.47	11.361	.612	.804
---	-------	--------	------	------

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
25.63	17.413	4.173	7

Intellectual Capital**Human Capital****Case Processing Summary**

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.831	6

Item Statistics

	Mean	Std. Deviation	N
1-Our employees have the knowledge and competence	4.13	.346	30
2-Our workforce have average educational level	3.40	1.070	30
3-Our company support the employees by constantly upgrading their skills and education whenever each of them feels it is necessary	3.80	.805	30
4-Instead of doing without thinking, our employees can work brightly	3.93	.640	30
5-Our employees share their experiences and knowledge with their colleagues	4.07	.583	30
6-Our employees share their creativity with their colleagues	3.90	.759	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1-Our employees have the knowledge and competence	19.10	8.783	.794	.806
2-Our workforce have average educational level	19.83	6.764	.471	.863

3-Our company support the employees by constantly upgrading their skills and education whenever each of them feels it is necessary	19.43	6.944	.692	.784
4-Instead of doing without thinking, our employees can work brightly	19.30	7.666	.693	.789
5-Our employees share their experiences and knowledge with their colleagues	19.17	7.799	.734	.786
6-Our employees share their creativity with their colleagues	19.33	7.402	.618	.800

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
23.23	10.530	3.245	6

Structural Capital

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.819	7

Item Statistics

	Mean	Std. Deviation	N
7-Our company's overall operation procedure is very efficient	3.90	.662	30
8-Our company quick in responding to the changes	4.03	.414	30
9-Our company support between different departments	4.10	.662	30
10-Our company's systems allow easy information access	3.57	.898	30
11-Our company's systems and procedures are flexible and efficient	4.10	.403	30
12-Our company's culture and atmosphere is supportive and comfortable	4.07	.365	30
13-Our company prides itself on being efficient	4.13	.346	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
7-Our company's overall operation procedure is very efficient	24.00	5.793	.433	.821
8-Our company quick in responding to the changes	23.87	6.257	.571	.798

9-Our company support between different departments	23.80	5.131	.681	.772
10-Our company's systems allow easy information access	24.33	4.230	.697	.785
11-Our company's systems and procedures are flexible and efficient	23.80	6.097	.680	.786
12-Our company's culture and atmosphere is supportive and comfortable	23.83	6.557	.492	.809
13-Our company prides itself on being efficient	23.77	6.254	.715	.788

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
27.90	7.610	2.759	7

Customer Capital

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

- a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.844	6

Item Statistics

	Mean	Std. Deviation	N
14-A poll of our customers would indicate that they are generally satisfied with our company	4.20	.407	30
15-Our company thrives on maintaining the most positive value added service of any firm in the industry	3.70	.988	30
16-Our company emphasizes on our customers' wants and strive to meet with customers	3.90	.923	30
17-Our company get as much feedback out of our customers as we possibly can under the circumstances	4.13	.434	30
18-Our company prides itself on being market-oriented	4.20	.407	30
19-Our company are confident of future with customer	4.13	.434	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
14-A poll of our customers would indicate that they are generally satisfied with our company	20.07	6.892	.697	.820

15-Our company thrives on maintaining the most positive value added service of any firm in the industry	20.57	4.806	.639	.844
16-Our company emphasizes on our customers' wants and strive to meet with customers	20.37	4.999	.653	.829
17-Our company get as much feedback out of our customers as we possibly can under the circumstances	20.13	6.740	.718	.815
18-Our company prides itself on being market-oriented	20.07	6.616	.844	.802
19-Our company are confident of future with customer	20.13	6.671	.752	.810

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
24.27	8.547	2.924	6

Organizational Learning

Information Acquisition

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.796	7

Item Statistics

	Mean	Std. Deviation	N
My company makes co-operation agreement with other companies, universities, technical colleges, etc	2.60	1.070	30
My company is in touch with professionals and expert technicians	4.00	1.050	30
My company encourages employees to join formal or informal nets made up by people outside the organization	3.50	1.280	30
My company asks employees to attend fairs and exhibitions regularly	3.73	1.311	30
My company has a consolidated and resourceful R&D policy	3.27	1.413	30
My company has new ideas and approaches on work performance that are experimented continuously	4.27	.521	30
My company has the organizational systems and procedures that support innovation.	3.80	1.031	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
My company makes co-operation agreement with other companies, universities, technical colleges, etc	22.57	25.633	.126	.835
My company is in touch with professionals and expert technicians	21.17	22.075	.503	.774
My company encourages employees to join formal or informal nets made up by people outside the organization	21.67	19.333	.637	.747
My company asks employees to attend fairs and exhibitions regularly	21.43	17.840	.775	.715
My company has a consolidated and resourceful R&D policy	21.90	19.403	.542	.771
My company has new ideas and approaches on work performance that are experimented continuously	20.90	24.438	.667	.775
My company has the organizational systems and procedures that support innovation.	21.37	20.930	.652	.749

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
25.17	28.144	5.305	7

Information Distribution**Case Processing Summary**

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.805	5

Item Statistics

	Mean	Std. Deviation	N
My company informs all members about the aim of the company	3.93	.521	30
My company holds meetings periodically to inform all the employees about the latest innovations in the company	3.27	.944	30

My company has formal mechanisms to guarantee the sharing of the best practices among the different fields of the activity	3.00	.947	30
My company has individuals who take part in several teams or divisions and who also act as links between them	3.37	1.033	30
My company has individuals responsible for collecting, assembling, and distributing internally employee's suggestions	2.83	1.053	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
My company informs all members about the aim of the company	12.47	10.120	.456	.811
My company holds meetings periodically to inform all the employees about the latest innovations in the company	13.13	7.568	.663	.744
My company has formal mechanisms to guarantee the sharing of the best practices among the different fields of the activity	13.40	7.559	.662	.744

My company has individuals who take part in several teams or divisions and who also act as links between them	13.03	7.482	.593	.769
My company has individuals responsible for collecting, assembling, and distributing internally employee's suggestions	13.57	7.220	.632	.756

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
16.40	11.903	3.450	5

Information Interpretation

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.814	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
In my company, all the members of the organization share the same aim to which they feel committed	15.30	6.355	.492	.809
In my company, employees share knowledge and experience by talking to each other	15.13	6.533	.803	.759
In my company, teamwork is a very common practice	15.07	6.754	.739	.774
My company develops internal rotation programs so as to facilitate the shifts of the employees from one department or function to another	15.57	5.082	.633	.775
My company offers other opportunities to learn (visits to other parts of the organization, internal training programs, etc.) so as to make individuals aware of other people or departments' duties	15.87	4.533	.675	.771

Item Statistics

	Mean	Std. Deviation	N
In my company, all the members of the organization share the same aim to which they feel committed	3.93	.740	30
In my company, employees share knowledge and experience by talking to each other	4.10	.481	30
In my company, teamwork is a very common practice	4.17	.461	30
My company develops internal rotation programs so as to facilitate the shifts of the employees from one department or function to another	3.67	.959	30
My company offers other opportunities to learn (visits to other parts of the organization, internal training programs, etc.) so as to make individuals aware of other people or departments' duties	3.37	1.066	30

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
19.23	8.737	2.956	5

Organizational Memory

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.917	8

Item Statistics

	Mean	Std. Deviation	N
My company has databases to stock its experiences and knowledge so as to be able to use them later on	3.13	1.074	30
My company has directories or emails field according to the field they belong to, so as to find an expert on a create issue at any time	2.57	.898	30
My company has up-to-date databases of its clients	3.23	1.006	30

My company has access to the organization's data basis and documents through some kind of network (Lotus Notes, Intranet, etc.)	2.93	.980	30
My company keeps databases up-to-date	3.53	.937	30
My company allows all the employees to have access to the organization's databases	2.67	.844	30
In my company, employees consult the databases	2.73	1.015	30
In my company, the codification and knowledge administration system make work easier for the employees	3.30	.952	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
My company has databases to stock its experiences and knowledge so as to be able to use them later on	20.97	26.654	.890	.891
My company has directories or emails field according to the field they belong to, so as to find an expert on a create issue at any time	21.53	30.464	.647	.912

My company has up-to-date databases of its clients	20.87	28.533	.757	.903
My company has access to the organization's data basis and documents through some kind of network (Lotus Notes, Intranet, etc.)	21.17	29.454	.683	.909
My company keeps databases up-to-date	20.57	29.909	.672	.910
My company allows all the employees to have access to the organization's databases	21.43	30.806	.657	.911
In my company, employees consult the databases	21.37	28.240	.780	.901
In my company, the codification and knowledge administration system make work easier for the employees	20.80	29.476	.706	.907

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
24.10	37.679	6.138	8

Entrepreneurial Orientation

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded ^a	0	.0
Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.802	9

Item Statistics

	Mean	Std. Deviation	N
In my company, new ideas come up all the time	3.93	.583	30
Continuous renewal and innovation are important for my company	4.07	.521	30
Lately my company has launched many new products/ services	3.90	.759	30
My company invests heavily in developing new products / services and business practices	3.63	.850	30
My company often acts before the competitors do	3.73	.828	30
My company aims at being at the forefront of development in our business sector	3.90	.607	30

My company prefers the cautious line of action even if some opportunity might be lost that way	3.93	.583	30
Bold action is necessary to achieve my company's objectives	3.13	1.074	30
In uncertain situations my company is not afraid to take substantial risks	2.13	.434	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
In my company, new ideas come up all the time	28.43	13.978	.425	.791
Continuous renewal and innovation are important for my company	28.30	13.321	.678	.767
Lately my company has launched many new products/ services	28.47	12.533	.570	.772
My company invests heavily in developing new products / services and business practices	28.73	11.099	.768	.739
My company often acts before the competitors do	28.63	11.964	.615	.764
My company aims at being at the forefront of development in our business sector	28.47	13.223	.584	.773

My company prefers the cautious line of action even if some opportunity might be lost that way	28.43	15.082	.165	.816
Bold action is necessary to achieve my company's objectives	29.23	10.806	.596	.773
In uncertain situations my company is not afraid to take substantial risks	30.23	15.840	.041	.821

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
32.37	16.171	4.021	9



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APPENDIX E2-TEST OF NON-RESPONDENT BIAS

Group Statistics					
	Bias	N	Mean	Std. Deviation	Std. Error Mean
Innovative Performance	Early	175	3.6592	.62669	.04864
	Late	150	3.7019	.59674	.04872
Human Capital	Early	175	4.0783	.46191	.03585
	Late	150	4.0422	.47187	.03853
Structural Capital	Early	175	4.0981	.45580	.03538
	Late	150	4.1410	.42937	.03506
Customer Capital	Early	175	3.9930	.45886	.03561
	Late	150	4.0922	.45266	.03696
Information Acquisition	Early	175	3.4836	.75914	.05892
	Late	150	3.5000	.79681	.06506
Information Distribution	Early	175	3.8313	.56007	.04347
	Late	150	3.7920	.63832	.05212
Information Interpretation	Early	175	3.9964	.46265	.03591
	Late	150	3.9613	.41560	.03393
Organizational Memory	Early	175	3.6928	.59506	.04619
	Late	150	3.5925	.72879	.05951
Entrepreneurial Orientation	Early	175	3.6847	.48212	.03742
	Late	150	3.7815	.44115	.03602

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Innovative Performance	Equal variances assumed	.011	.918	-.619	314	.537	-.04270	.06902	-.17849	.09310
	Equal variances not assumed			-.620	313.129	.536	-.04270	.06885	-.17816	.09276
Human Capital	Equal variances assumed	.059	.808	.687	314	.493	.03609	.05257	-.06735	.13953
	Equal variances not assumed			.686	309.319	.493	.03609	.05263	-.06746	.13965
Structural Capital	Equal variances assumed	.009	.923	-.858	314	.392	-.04285	.04996	-.14114	.05545
	Equal variances not assumed			-.860	313.449	.390	-.04285	.04981	-.14084	.05515
Customer Capital	Equal variances assumed	1.295	.588	-1.932	314	.064	-.09925	.05136	-.20031	.00181
	Equal variances not assumed			-1.934	311.581	.064	-.09925	.05133	-.20024	.00174
Information Acquisition	Equal variances assumed	.179	.673	-.187	314	.852	-.01635	.08756	-.18863	.15593
	Equal variances not assumed			-.186	307.096	.852	-.01635	.08777	-.18907	.15636
Information Distribution	Equal variances assumed	2.570	.110	.583	314	.560	.03933	.06742	-.09333	.17198
	Equal variances not assumed			.579	298.127	.563	.03933	.06787	-.09423	.17289
Information Interpretation	Equal variances assumed	.402	.527	.706	314	.481	.03505	.04967	-.06268	.13279
	Equal variances not assumed			.709	313.990	.479	.03505	.04941	-.06216	.13226
Organizational Memory	Equal variances assumed	2.079	.108	1.345	314	.180	.10027	.07456	-.04644	.24698
	Equal variances not assumed			1.331	288.159	.184	.10027	.07533	-.04799	.24853

Entrepreneurial Orientation	Equal variances assumed	2.636	.105	-1.854	314	.065	-.09674	.05217	-.19940	.00591
	Equal variances not assumed			-1.863	313.948	.063	-.09674	.05194	-.19894	.00545



APPENDIX E3 – OUTLIERS TEST

Number of Case	Mahalanobis (χ^2)
82	46.43441
322	40.71227
325	40.71227
323	38.9779
324	34.94701
113	31.72112
129	31.72112
321	30.55285
313	26.81839

Mahalanobis Distance (Hair et al., 2010): $P < 0.001$

Multivariate Outlier = Mahalanobis Distance > Chi-square value

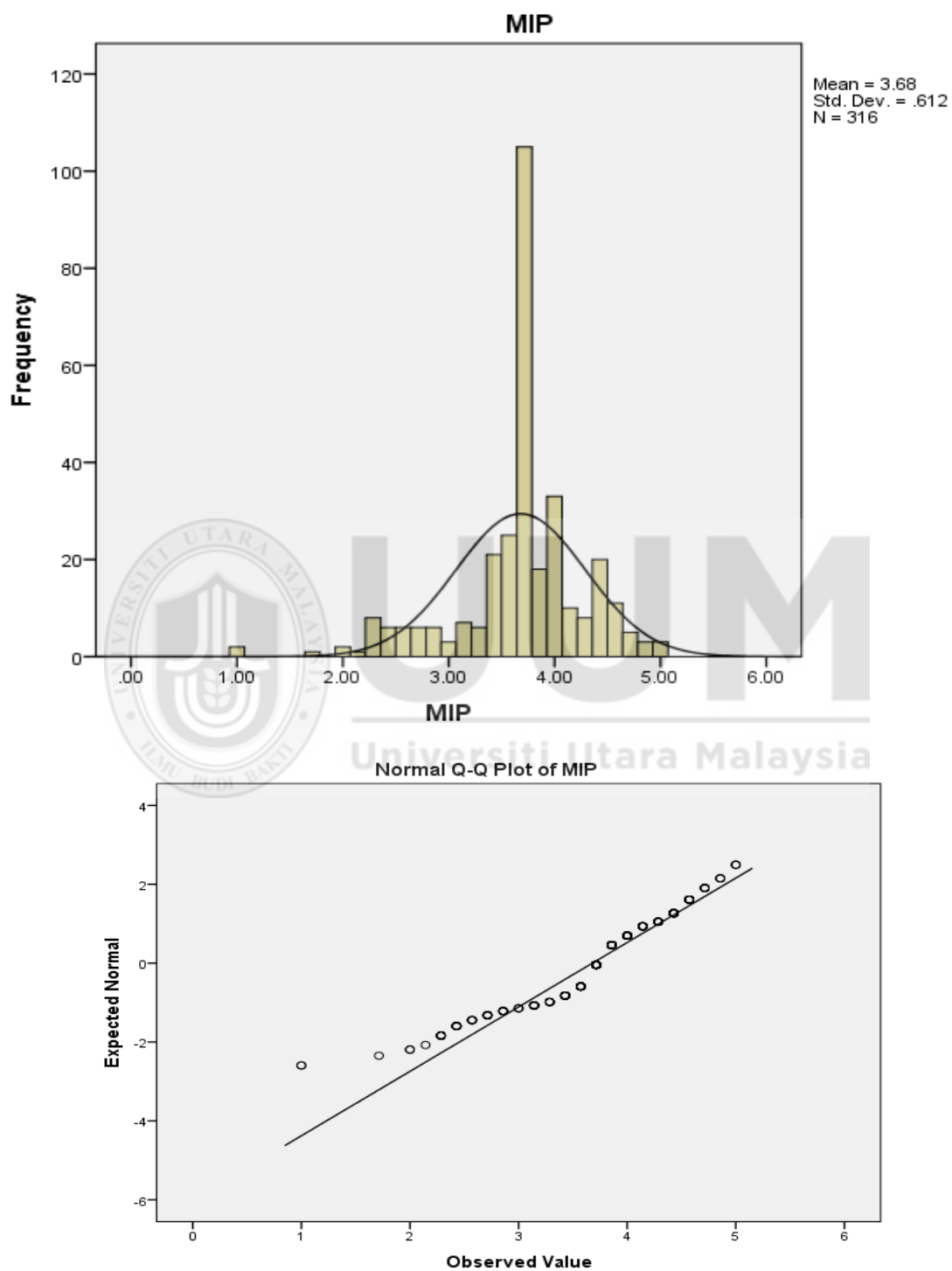
Chi-square Value = $X^2(7, 0.001) = 24.322$ (based on Chi-square table)

APPENDIX E4 - NORMALITY TEST

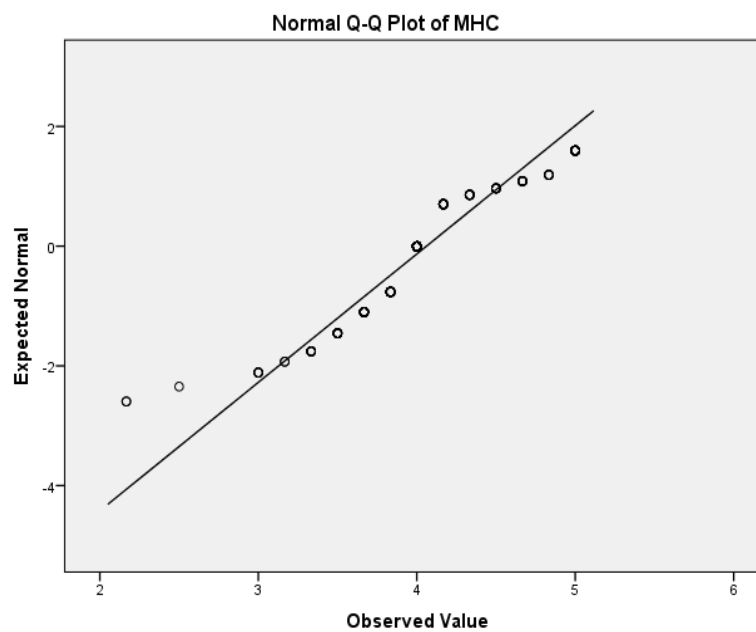
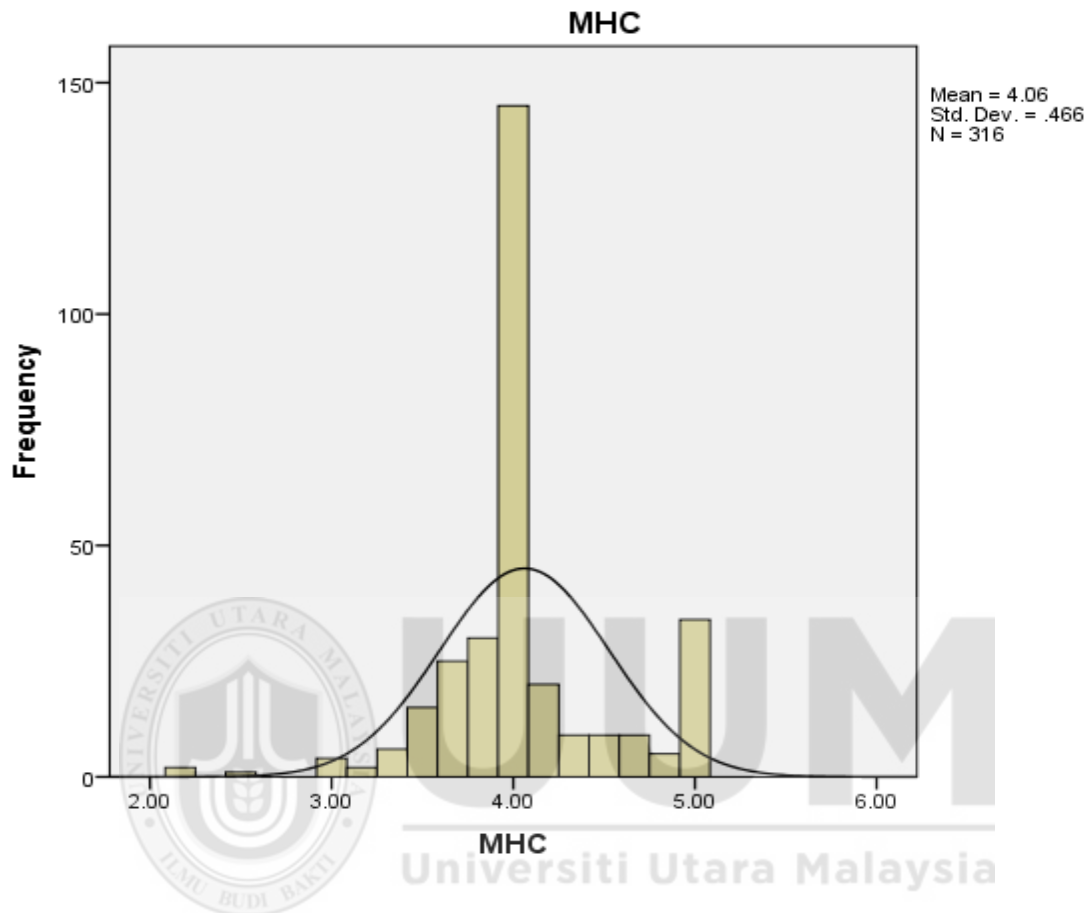
Descriptive Statistics for the Normality

Descriptive Statistics					
	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Innovative Performance	316	-1.041	.137	2.473	.273
Human Capital	316	.091	.137	1.880	.273
Structural Capital	316	.021	.137	.343	.273
Customer Capital	316	.250	.137	-.170	.273
Information Acquisition	316	-.105	.137	-.772	.273
Information Distribution	316	-.356	.137	.204	.273
Information Interpretation	316	.337	.137	.782	.273
Organizational Memory	316	-.373	.137	.329	.273
Entrepreneurial Orientation	316	.142	.137	.413	.273
Valid N (listwise)	316				

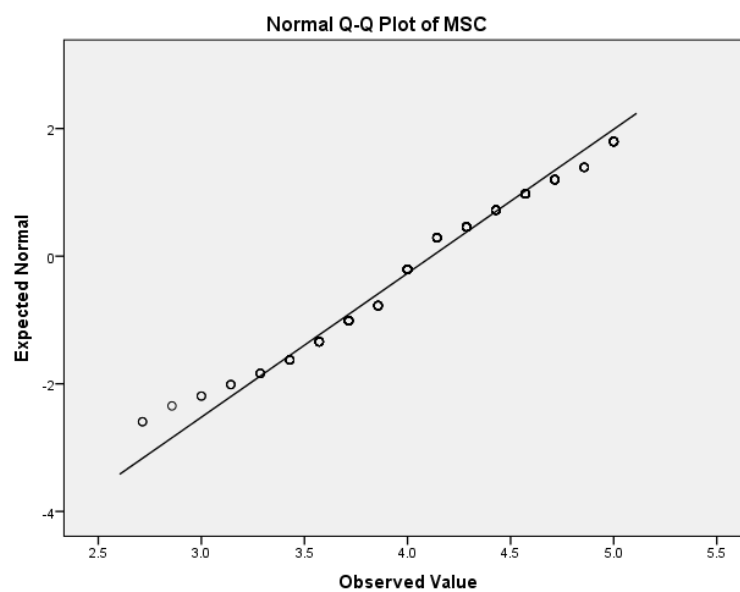
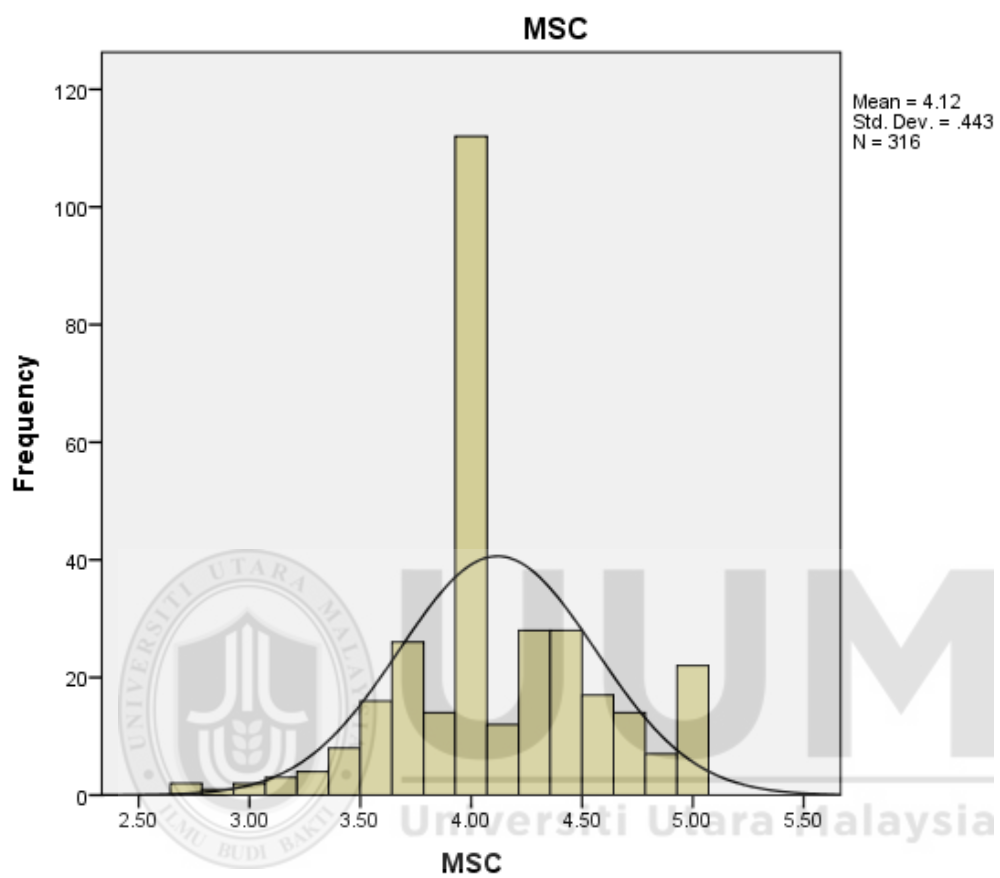
Normality Test (Innovative Performance)



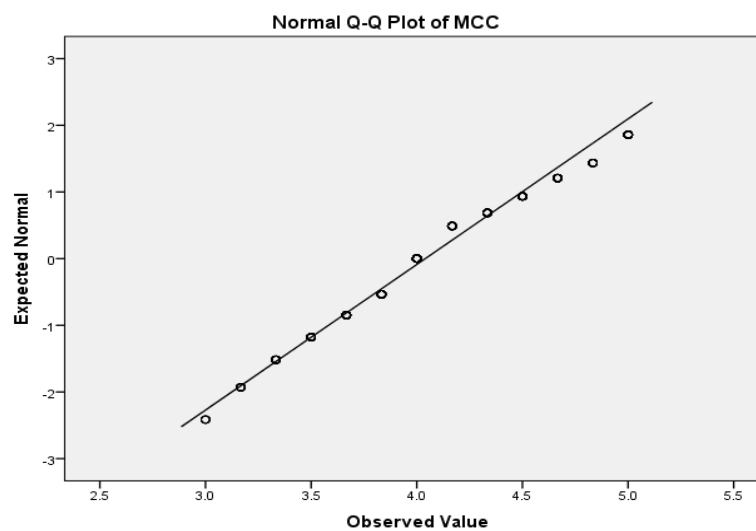
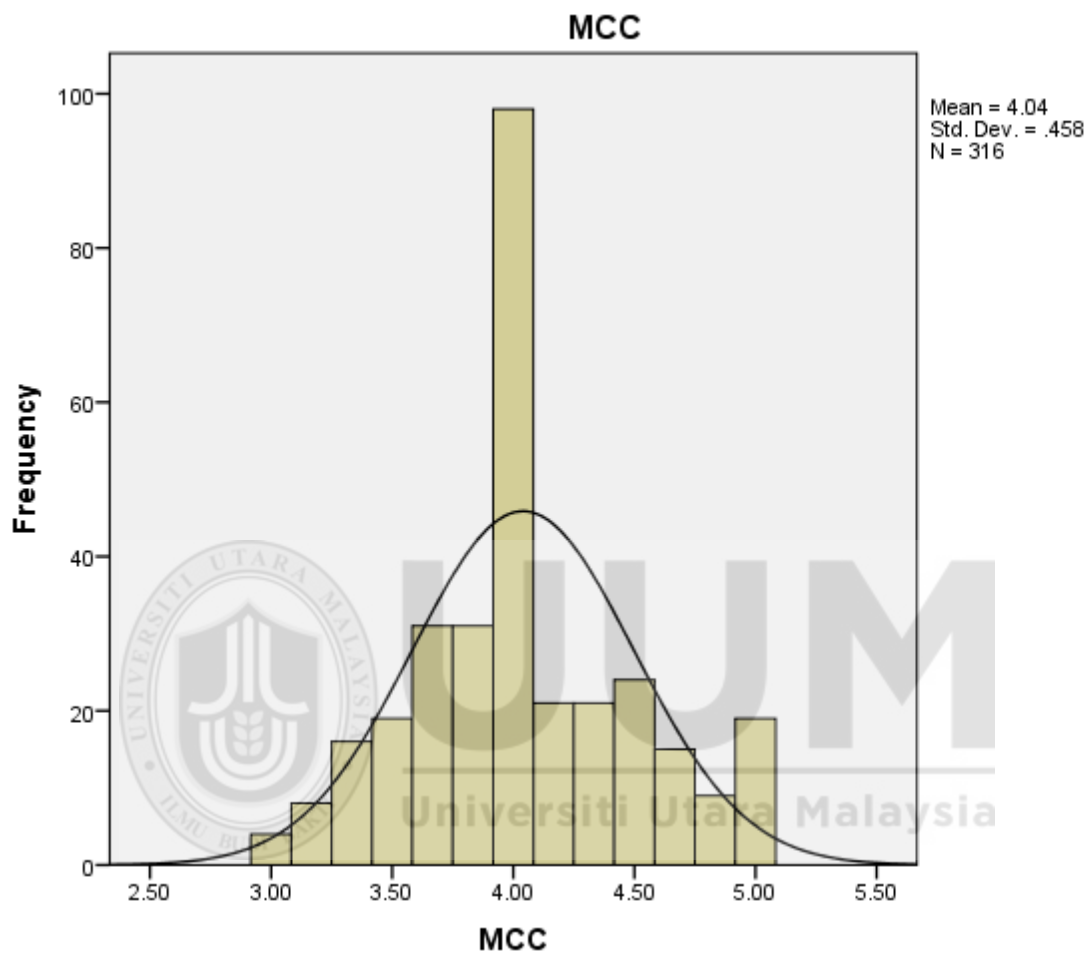
Normality Test (Human Capital)



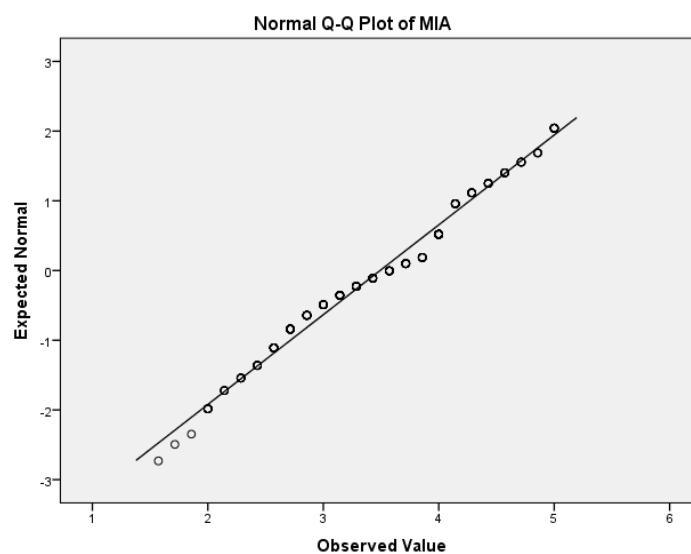
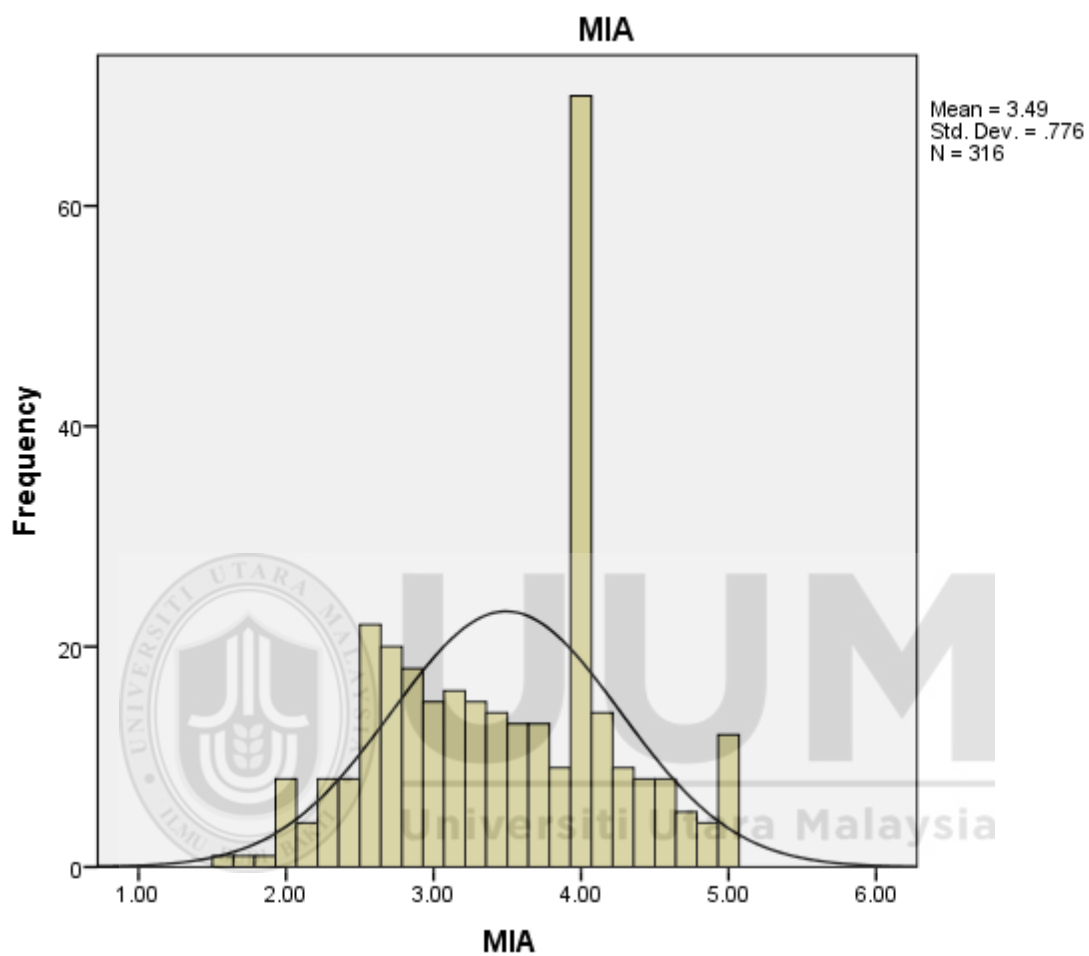
Normality Test (Structural Capital)

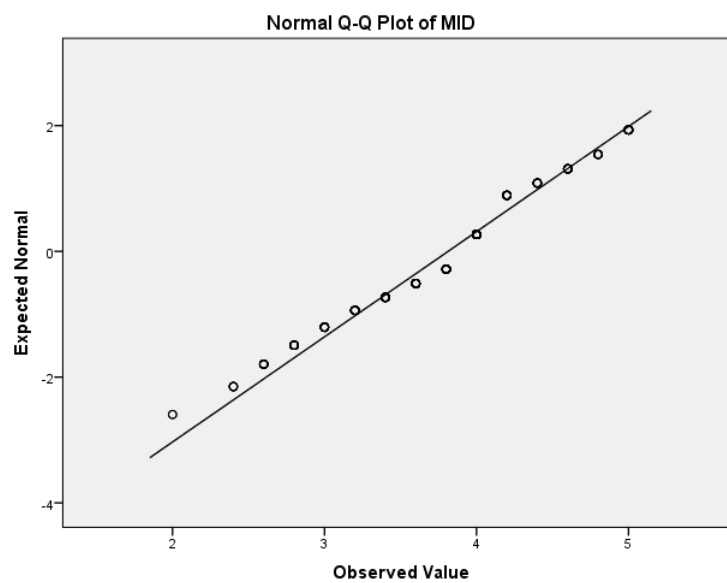
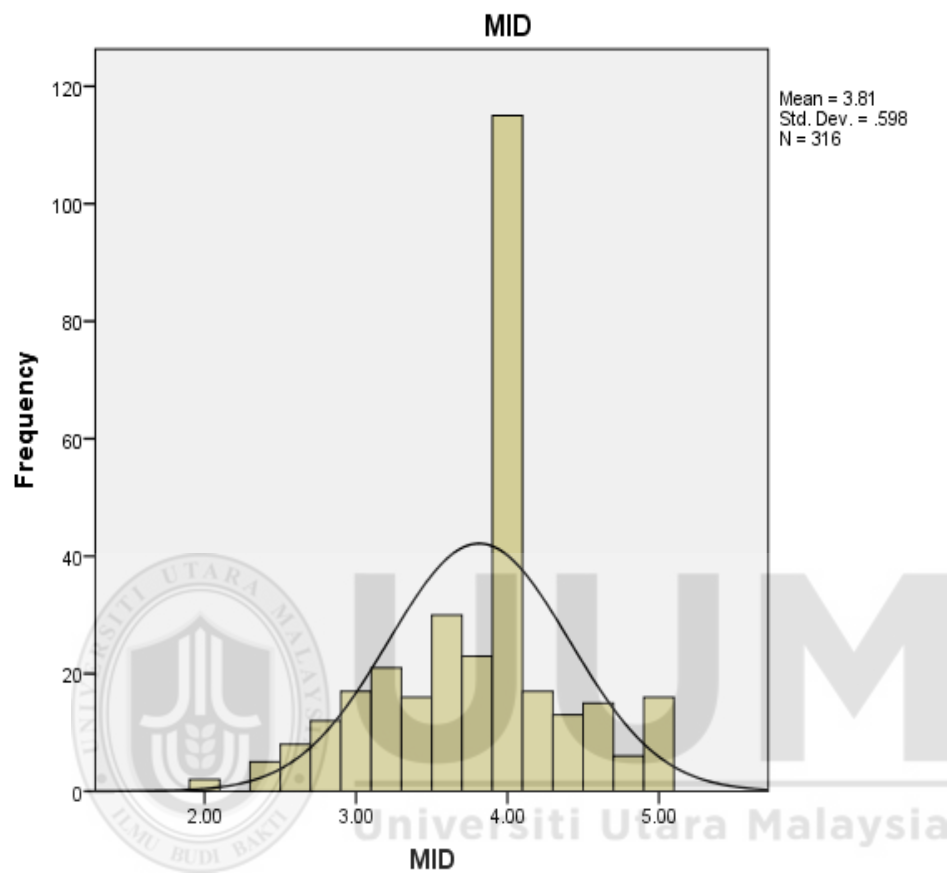


Normality Test (Customer Capital)

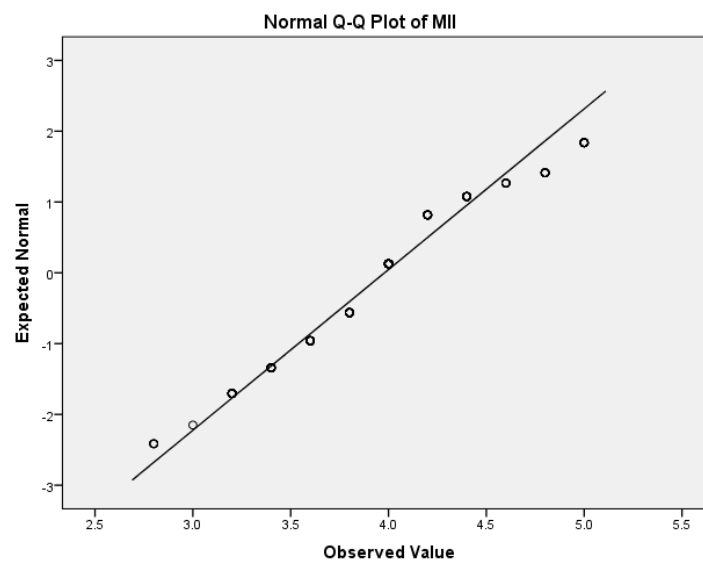
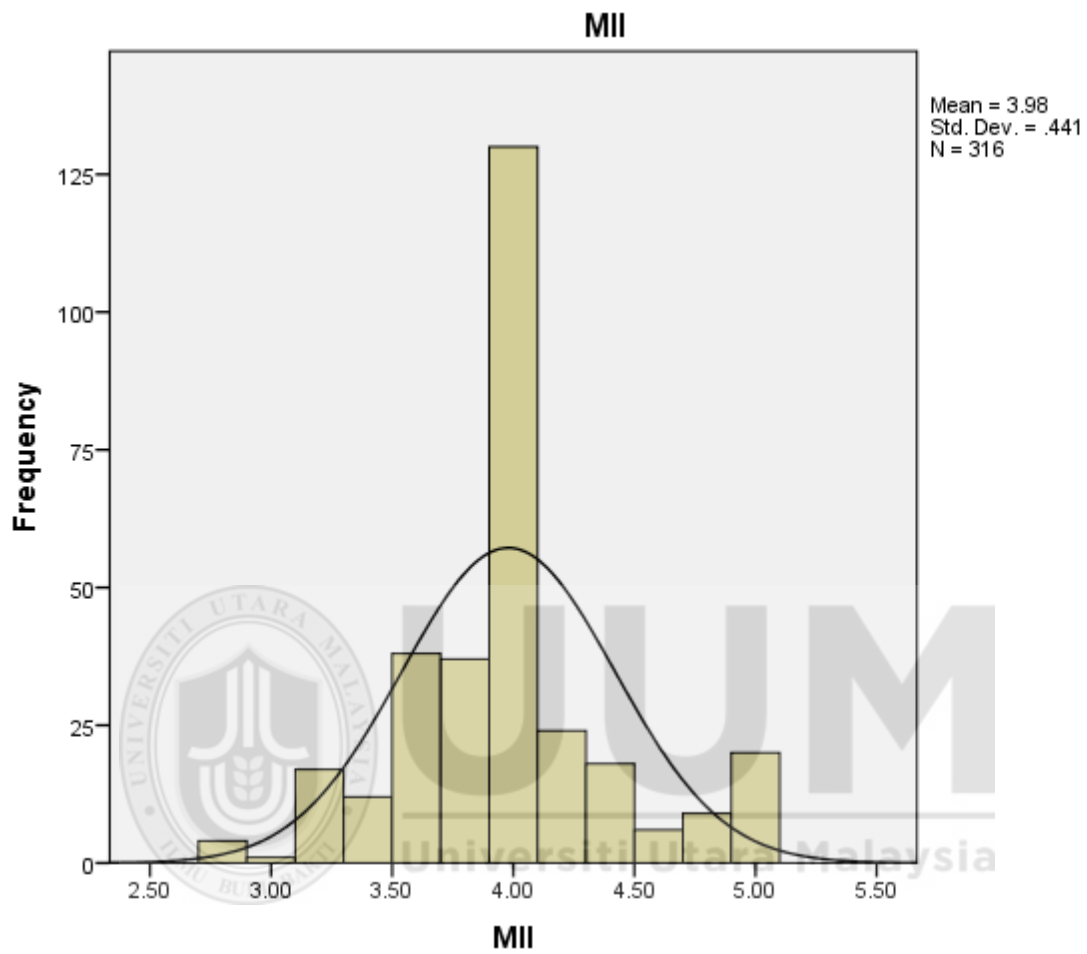


Normality Test (Information Acquisition)

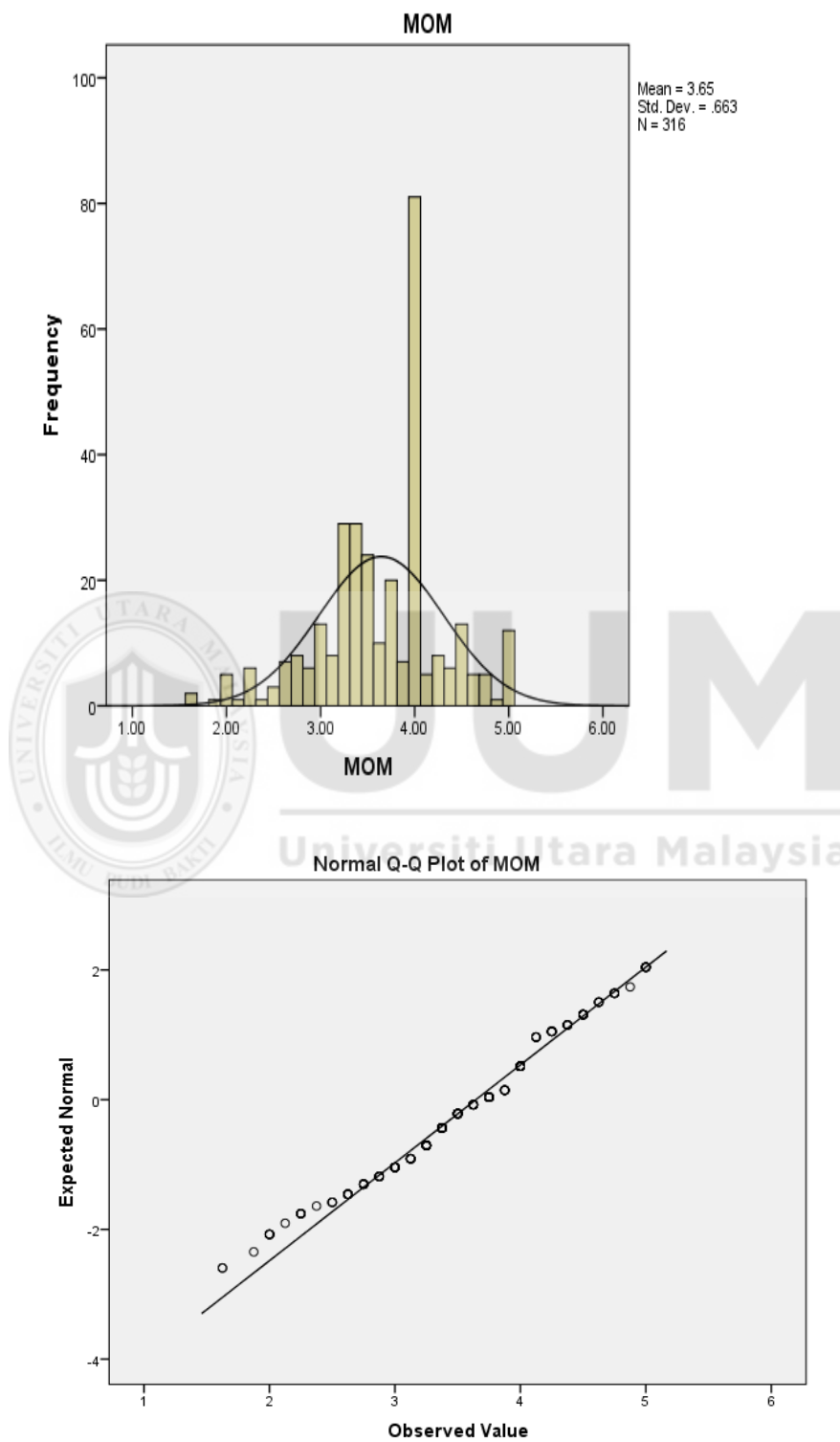


Normality Test (Information Distribution)

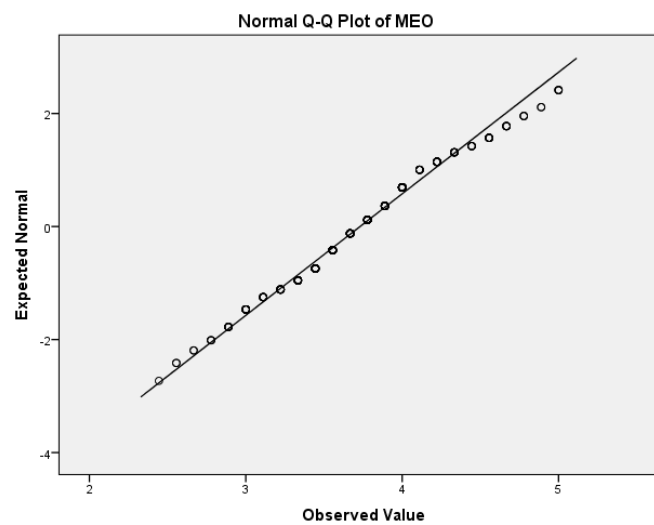
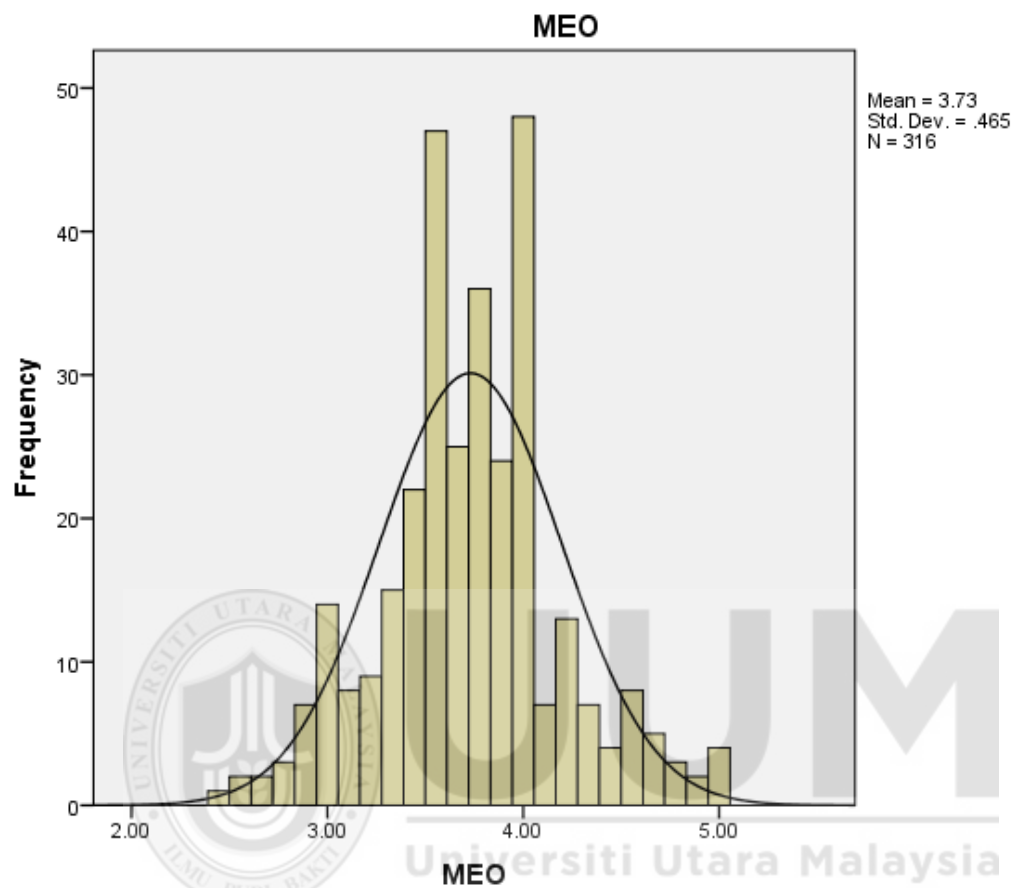
Normality Test (Information Interpretation)



Normality Test (Organizational Memory)



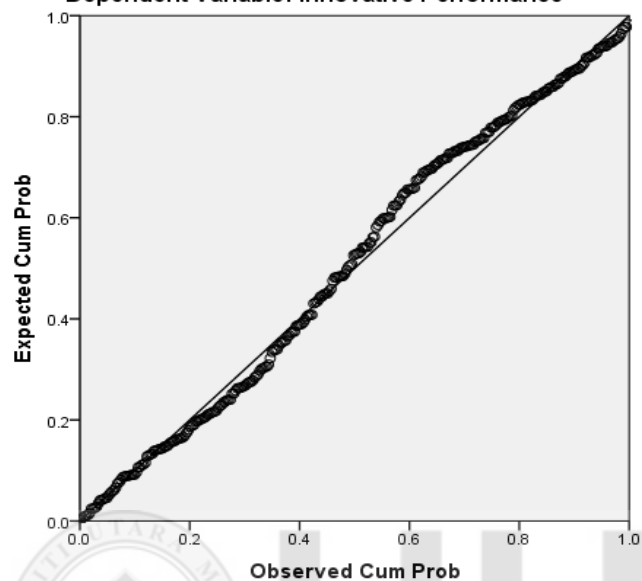
Normality Test (Entrepreneurial Orientation)



APPENDIX E5 – LINEARITY TEST

Normal P-P Plot of Regression Standardized Residual

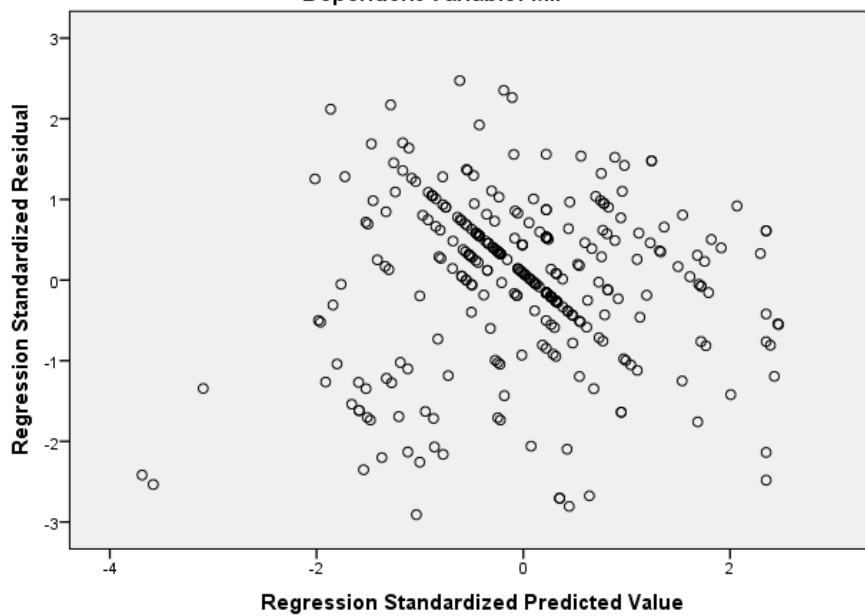
Dependent Variable: Innovative Performance



HOMOSCEDASTICITY TEST

Scatterplot

Dependent Variable: MIP



APPENDIX E6- MULTICOLLINEARITY ASSESSMENT OF TOLERANCE AND VIF VALUES

Multicollinearity Assessment of Tolerance and VIF Values

Variable		Tolerance	VIF
Innovative Performance		.418	2.391
Intellectual Capital	Human Capital	.389	2.571
	Structural Capital	.419	2.384
	Customer Capital	.336	2.977
Organizational Learning	Information Acquisition	.366	2.733
	Information Distribution	.379	2.640
	Information Interpretation	.487	2.054
	Organizational Memory	.336	2.973
Entrepreneurial Orientation		.299	3.348

APPENDIX F- PRE-TEST EXPERTS

List of pre-test experts

No.	Name	University
1	Assoc. Prof. Dr. Abdul Halim Abdul Majid	Universiti Utara Malaysia
2	Assoc. Prof. Dr. Norsiah Mat	Universiti Utara Malaysia
3	Dr. Imad Mohd Almuala	Amman Arab University



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