THE EFFECTS OF INTELLECTUAL CAPITAL, INNOVATIVE BEHAVIOR, AND ABSORPTIVE CAPACITY ON ORGANIZATIONAL EFFECTIVENESS IN THE SERVICE INDUSTRY IN THAILAND – THE MODERATING ROLE OF SOCIAL CAPITAL

Xuemei Sun

A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
Doctor of Philosophy (Management)
International College,
National Institute of Development Administration
2020

THE EFFECTS OF INTELLECTUAL CAPITAL, INNOVATIVE BEHAVIOR, AND ABSORPTIVE CAPACITY ON ORGANIZATIONAL EFFECTIVENESS IN THE SERVICE INDUSTRY IN THAILAND – THE MODERATING ROLE OF SOCIAL CAPITAL

Xuemei Sun
International College,

..... Major Advisor
(Assistant Professor Sid Suntrayuth, Ph.D.)

The Examining Committee Approved This Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy (Management).

..... Committee Chairperson
(Assistant Professor Marisa Laokulrach, Ph.D.)

..... Committee
(Sarunyikha Santsupakit, Ph.D.)

..... Committee
(Assistant Professor Sid Suntrayuth, Ph.D.)

..... Dean
(Associate Professor Piboon Puriveth, Ph.D.)

_____/_____/_____

ABSTRACT

Title of Dissertation	THE EFFECTS OF INTELLECTUAL CAPITAL, INNOVATIVE BEHAVIOR, AND ABSORPTIVE CAPACITY ON ORGANIZATIONAL EFFECTIVENESS IN THE SERVICE INDUSTRY IN THAILAND – THE MODERATING ROLE OF SOCIAL CAPITAL
Author	Xuemei Sun
Degree	Doctor of Philosophy (Management)
Year	2020

The present study explored the association between intellectual capital, employees' innovative behavior in the workplace, the absorptive capacity of a firm, and organizational effectiveness of the Thai listed companies in the service industry. The survey data were collected from 423 managers from 198 listed companies in Thailand. The results showed that intellectual capital tended to improve the employees' innovative behavior and the firm's absorptive capacity, and finally enhance corporate organizational effectiveness. Furthermore, the results from the moderating effect found that the positive relationship of intellectual capital with both innovative behavior and absorptive capacity tended to be significantly higher for the organization which owns a higher level of social capital. The main findings of this study provide theoretical implications to the field of knowledge management and organizational effectiveness, as well as practical implications for managers in service-oriented companies, given that improving intellectual capital tends to bring enhancement of innovative behavior and absorptive capacity, and finally positively impact organizational effectiveness. Thus, these findings imply that managers should effectively manage intangible organizational assets by recognizing and utilizing those resources to reach organizational effectiveness to a higher extent.

ACKNOWLEDGEMENTS

I would like to express my appreciation to the following people who have given me support to complete this dissertation.

First of all, I would like to express my sincere gratitude to my advisor, Assistant Professor Sid Suntrayuth Ph.D. for his helpful comments, suggestions and dedication throughout the dissertation. He offered excellent and valuable feedback and encouragement at various stages to make this dissertation possible. Besides, I would like to offer many thanks to committees, Assistant Professor Marisa Laokulrach, Ph.D. and Sarunyikha Santsupakit, Ph.D. for their dedication.

Secondly, I would like to appreciate all the instructors at the International College of the National Institute of Development Administration (NIDA). My knowledge and experience have improved in the years I have attended the program. Moreover, I would like to thank all staff for their kind assistance and hard work throughout my study.

I am also very grateful to the all managers from Thai listed companies who took part in the survey for their kind participation.

Last but not least, I would like to sincerely thank my family who always encourage me to work towards being a better person in every aspect of life, and tell me to never give up.

Xuemei Sun

November 2020

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

1.1 Background

In today's fast-changing and increasingly ambitious global business world, organizational capabilities are based on knowledge (Marr, Schiuma, & Neely, 2004), which fulfills a prediction of Wiig (1997) that knowledge would be the root of success in the twenty-first century. In addition, scholars mention that knowledge assets and intangible resources have become not only powerful equipment for corporate competition but major resources for successful companies (Guthrie, 2001; Shih, Chang, & Lin, 2010). Intangible asset has often been defined as intellectual capital or knowledge assets in organizations (OECD, 2011), which is an asset that is not physical in nature. These intangible assets can be categorized in numerous ways, some for the purpose of economic and some for the purpose of corporate legal protection (Boland, 2019). The one with economic purpose involves commercial and marketing intangible assets, such as trademarks, brand recognition, customer lists, and customer relationships. The one with purpose of legal protection can be patents, copyright, and trade secrets (United Nations, 2016 cited as Boland, 2019). In addition, a study of Thum-Thysen, Voigt, Bilbao-Osorio, Maier, and Ognyanova (2019) divided the types of intangible assets into computerized information, like software, databases, and R&D; innovative property, such as copyright and creative assets, new product development in financial services; and economic competencies, like market research, staff trainings, management consulting. In short, intangible assets involves both internally produced assets and externally acquired assets (Arrighetti, Landini, & Lasagni, 2014). Evidence shows an increasing number of countries realize that investing in intangible assets can bring faster growth than in tangibles assets. For instance, the contribution of intangible assets occupied 75% of a firm's value by 2002

(Kaplan & Norton, 2004). WIPO (2017) mentions production in the 21st century is characterized by a "smile curve" which indicates that intangible assets have become significantly vital in a dynamic environment. The OECD (2011) concludes investment of firms in intangible assets is rapidly expanding by companies in the developed countries such as America, Japan, and Europe, with major consequences on productivity. According to Corrado, Haskel, Jona-Lasinio, and Iommi (2018), the data of gross domestic product (GDP) shows that the proportion of intangible investment in GDP has been increased to 8.8% by putting new intangible assets to national account assets in the US. Intangible investment displays similar magnitudes in developing countries as well. For instance, Yang and Zhou (2017) reported the sectoral average ratio of intangibles to tangibles was 0.7 %, and increased to 4.7% in 2012, which indicates that China's economic growth has seen a significant rise in its intangibles. Intangible assets are important not only for national GDP, but also for corporate value and growth of all kinds of organizations in today's economy. Guthrie and Yongvanich (2004) mentioned that 50-90 percent of the value is from corporate management of intangible assets or intellectual capital rather than the utilization and production of tangible material goods. In other words, intangible strategic resources are more highly valued than tangible resources in the current economic environment. As a result, knowledge has become a powerful and vital tool in the dynamic competitive environment and has been examined by academic and practical researchers for the purpose of achieving effective management in an organization. Marr et al. (2004) stated that the literature presents two major streams for discussing knowledge. One is called the epistemological approach, which interprets knowledge as information; in this way, tacit and explicit knowledge are the meaningful results from this stream (Liebowitz & Wright, 1999; Nonaka, 1991). The other stream specifies knowledge assets as a great component of corporate value; besides, intellectual capital is a significant contribution furnished by this research stream. Moreover, the resource-based theory states that it is necessary for an organization to gain sustained competitive advantages through holding resources and capabilities with the attributes of valuable, rare, inimitable, and non-substitutable (J. Barney, 1991). Intellectual capital is a strategic resource which is grounded in resource-based theory logic (Reed, Lubatkin, & Srinivasan, 2006). In this day and age, a greater extent of

businesses are conscious of the importance of intellectual capital in an organization; besides, it has evolved into a vital origin of sustainable competitive advantage (Marr, Schiuma, & Neely, 2002). In broad terms, intellectual capital is regarded as all intangible resources rooted in knowledge (Ordonez de Pablos, 2004). Actually, various definitions of intellectual capital have been proposed in management literature by numerous scholars. Hall (1992) classifies intellectual capital as corporate assets such as brand, trademark, contracts, databases; or competences involving employees with professional knowledge, and organization culture. Roos, Edvinsson, and Dragonetti (1997) state intellectual capital is composed of two parts which are human capital as a thinking part, and structural capital as a non-thinking part. Scholars mention intellectual capital is the notion that arranges all intangibles and their interconnections (Bontis, Dragonetti, Jacobsen, & Roos, 1999). For better understanding and classifying intellectual capital assets, its frameworks and elements are generated. Firstly, Roos et al. (1997) and a Swedish financial services company named Skandia introduced intellectual capital as a compound of human capital and structural capital. Some other researchers, led by Bontis (1998), represent human capital, structural capital and customer capital as three elements of intellectual capital. Also, some researchers and organizations classify intellectual capital by adding one more capital – innovation capital - to previous classifications (see Bassi & Van Buren, 1999).

In the meanwhile, it is also important to have the ability to maximally realize and utilize such resources for an organization seeking a competitive advantage, creating value, and performing well. To evaluate a firm's performance, many studies focus on the indicator of organizational performance. However, organizational performance involves only three aspects of firm outcomes (Richard, Devinney, Yip, & Johnson, 2009), which are financial performance, product market performance, and shareholder return. With regard to the impact of knowledge management, changes in organizational practices do not necessarily lead to changes in financial performance (Kalling, 2003). Therefore, organizational effectiveness is an important indicator in the knowledge-intensive economy since it is the most general and significant common objective of organization. To be specific, organizational effectiveness is a broader term that covers organizational performance, which involves measures for internal

performance results, such as effectiveness of operations, and external measures related to broader considerations than those related to economic valuation alone (Richard et al., 2009). In short, in the perspective of management, organizational effectiveness is the extent to which an organization achieves a prescriptive goal or represents the outcome of organizational activities of an organization (Henri, 2004). In today's knowledge-based business world, well management of a firm's knowledge can contribute to its organizational effectiveness (Argote & Ingram, 2000). Thus, intellectual capital or intangible assets play a vital role to create wealth for today's organizations; however, intellectual resources are unable to create valued assets for organizations until they are properly and effectively utilized in those organizations (Gold, Malhotra, & Segars, 2001; Penrose & Pitelis, 1959). This notion strongly fits with the absorptive capacity theory, which mentions the absorptive capacity of a firm as an important component for facilitating organizational performance since it contains the relevant abilities of identifying, assimilating, and exploiting external knowledge (Cohen & Levinthal, 1989, 1990). The model of absorptive capacity proposed by both studies of Cohen and Levinthal (1990) and Zahra and George (2002) also indicates that prior knowledge sources and experiences are antecedents affecting the absorptive capacity of a firm. In other words, an organization can take advantages from intellectual capital and its elements completely only by realizing and utilizing them in the right direction, then ultimately succeeding in business performance as well as achieving organizational effectiveness. Simultaneously, knowledge source is a leading antecedent to affect the absorptive capacity of a firm (Cohen & Levinthal, 1990; Zahra & George, 2002). In addition, by owning and effectively utilizing intellectual capital, an organization can enhance its innovation. A study proposed that the main determinants of a firm's innovative capability rely on the identification and management of its intellectual capital (Santos-Rodrigues & Figueroa, 2007). However, the root of innovation is personnel (Chen, Wu, & Chen, 2010). It is important for organizations to encourage innovative behavior of individuals in an organization, since developing, adopting, and implementing innovations in an organization widely depends on employees' innovative behavior in the workplace (Cingöz & Akdoğan, 2011). Besides, evidence has been presented that intellectual capital has an optimistic effect on employees' innovative behavior (see

Mura, Lettieri, Spiller, & Radaelli, 2012). Anyhow, intellectual capital can be seen as an indispensable part of an organization since it can positively affect the innovative behavior of corporate employees as well as enhance the absorptive capacity of a firm. Based on previous studies, this study proposes that the absorptive capacity of a firm and innovative behavior in the workplace can substitute two determinants, capabilities of knowledge infrastructure and knowledge process, in a framework of organizational effectiveness proposed by Gold et al. (2001), and to have a better understanding on organizational effectiveness and its determinants in the knowledge management field. Working from management research, organizational effectiveness is the extent to which an enterprise accomplishes a prescriptive goal, or represents the outcome of organizational activities of an organization (Georgopoulos & Tannenbaum, 1957; Henri, 2004). On all accounts, organizational effectiveness has become the most general and important objective for organizations nowadays.

An extension of the resource-based view, the relational view, advocates the means to accumulate competitive advantages from not only firm-level resources but also relations that are inserted in network relationships (Yli-Renko, Autio, & Sapienza, 2001). Consistently with the central argument of social capital theory, that is, network ties afford a pathway to resources (Nahapiet & Ghoshal, 1998). Therefore, social capital is a substantial factor for a firm to create and persist their competitive advantages, so that positive results in organizational effectiveness occur simultaneously. The roles of social capital have been discussed intensively in previous studies, such as to collect information, manage knowledge, and response to intensive market changes (Cabello-Medina, López-Cabrales, & Valle-Cabrera, 2011; Lee & Sukoco, 2007; Nahapiet & Ghoshal, 1998; Wu, Chang, & Chen, 2008). Scholars and practitioners realized the significances of social capital in an organization, so there are various definitions proposed based on different perspectives. For instance, Bourdieu (1986) initially defined social capital as a collection of actual or potential resources that are more or less related to organized and sustaining mutually knowledgeable or recognizable networks. Putnam (1993, 1995) interpreted social capital as characteristics of a social organization involving trust and norms, as well as networks that can enhance cooperation along with action for attaining mutual benefit. The various clarifications are based on the level of return or profit on social capital. The

individual level is related to how individuals gain returns through obtaining and applying resources embedded in their social network (Flap, 1988; Lin, 1982). The other one emphasizes the group level, which puts attention on how groups progress and retain social capital as collective assets (Bourdieu, 1986; Coleman, 1990; Putnam, 1993). This paper aims to analyze the process organization-wide; therefore, social capital is focused at the group level or the macro level introduced by Brown, Coote, and Gosden (2000). In addition, Yli-Renko et al. (2001) summarized that various social assets could distribute dissimilar effects on relationship outcomes. Then, this paper took three dimensions of social capital introduced by Nahapiet and Ghoshal (1998) into consideration involving structural capital, relational capital, and cognitive capital. The characteristics of social capital suggest that an organization with higher social capital could increase the efficiency of action and of information diffusion, as well as encourage collaborative behavior, and then further the growth of innovation and value creation. For example, a study by Lee and Sukoco (2007) on the moderating role of social capital found that knowledge management capability was positively moderated by social capital on organizational effectiveness. Besides, social capital emphasizes a society's social networks, especially in the oriental culture (Marsh, 2003). This study will conduct in Thailand, which has an oriental culture, so it is critical to see the effects of social capital on organizations in Thailand. In addition, the presence of social capital in an organization can enhance its knowledge capture, knowledge codification, and knowledge transfer (Chesbrough & Teece, 1998; Kale, Singh, & Perlmutter, 2000). Hence, in this study, social capital will be regarded as a moderator and investigated for its effects on knowledge management or specified as innovative behavior and absorptive capacity of an organization, and ultimately result in organizational effectiveness.

1.2 Significance of the Study

The majority of extant studies are concerned with the effects of either intellectual capital or knowledge management on organizational performance (Bontis, 1998; Marr et al., 2004; Mills & Smith, 2011; Tseng & Lee, 2014), but a small number of studies have looked into the relationship of intellectual capital with

organizational effectiveness. Fongtanakit (2013) mentions there are various determinants towards organizational effectiveness that reflect diverse things to different people. Even though no best criterion for evaluating organizational effectiveness is presented, one might argue that organizational effectiveness requires multiple determinants. Besides, Curado (2008) concludes that intellectual capital and knowledge management are academic and practical fields that still need more accumulation of theoretical development and empirical studies. Based on these conclusions, this study takes a decomposed view to investigate how intellectual capital, innovative behavior in the workplace, and the absorptive capacity of a firm affect organizational effectiveness. Moreover, this study concentrates on not only works of literature but practices in organizations. Manoharan and Singal (2019) mentioned that although there are many models of organizational effectiveness explored in academic papers, these models are neither related to practice, nor specific to the service industry. Scholars also lack an observation of the importance of intangible assets or intellectual capital in developing countries. Likewise, there are not many studies looking closely to explain the situation of knowledge management in the service industry while the service sector is continuously growing nowadays (Bouncken, 2002; Cooper, 2006; Pusaksrikit, 2006). Thus, this study will identify the importance of intangible assets and explain knowledge management in the service sector of developing countries; moreover, this study will also focus on the listed companies in the service sector of the Stock Exchange of Thailand (SET) and Market for Alternative Investment (MAI). In addition, many works on intellectual capital or organizational effectiveness have been mainly based on the study of single organizations, case studies, or small groups of organizations. This study will adapt reliable and accurate research models meeting international standards to test across firms for the purpose of having a better generalization.

According to the suggestions of previous papers (Mariano & Walter, 2015; Noblet, Simon, & Parent, 2011), the concepts of the absorptive capacity in the knowledge management or intellectual capital fields were largely underdeveloped; therefore, this study will particularly examine the effect of intellectual capital on the absorptive capacity of a firm as well. Besides, since social capital theory was brought up from western culture, only a few pieces of research tested its benefits in eastern

countries. However, social relations are an important concern in eastern countries. On the authority of Hofstede's (1994 cited as Chudzikowski, 2001) culture dimensions, compared to western culture, eastern cultures are more collective than individual, and collectivism pays attention to social relationships no matter in daily routine or in the marketplace. Accordingly, it is compulsory for organizations to explore and employ social capital as collective assets in organizations of the Asian countries. In the meanwhile, social capital is consistent with the resource-based theory as well as absorptive capacity theory, so the results of this study will also enhance academic knowledge in both resource-based theory and absorptive capacity theory on organizational effectiveness.

1.3 Statement of the Problem

Companies today are working hard to survive in a rapidly transforming and intensively competitive business circumstance. Organizational effectiveness is one of the dominant indexes to check companies' health. Organizational effectiveness can maintain at a high level when an organization is able to meet its objectives. This is placing pressure on management since organizational effectiveness involves creating and completing the right objectives with the right resources in the right way. Nowadays, intangible assets or intellectual capital of firms are increasingly essential for their survival, so intangibles become leading resources for an organization nowadays. However, intangible assets can create value for an organization only when they are utilized through organizational procedures and affect organizational effectiveness. Working from the literature, there is no best criterion for evaluating organizational effectiveness; besides, few studies are concerned with how intellectual capital is involved in organizational effectiveness, no matter in direct or indirect relations. Thus, the focal point of this study is to investigate the organizational effectiveness of employing intellectual capital on innovative behavior in the workplace and the absorptive capacity of a firm. Based on the perspective of knowledge management, this study also aims to measure the rationality and validity of the conceptual model which is adapted from the absorptive capacity model (Zahra & George, 2002) and the framework proposed by Gold et al. (2001). Moreover,

relationship networks are emphasized in Asian culture, so social capital is involved and considered as a moderator. Therefore, this study will also test if social capital has a moderating effect upon intellectual capital, innovative behavior, absorptive capacity, and organizational effectiveness.

1.4 The Objectives of the Study

The literature shows that organizational effectiveness is the most general and important objective for organizations surviving in the turbulent and dynamic business environment. Besides, the literature also found that intangible assets or intellectual capital are antecedents of innovative behaviors in the workplace and absorptive capacity of a firm; moreover, these factors can have effects on organizational effectiveness. Since these resources are inserted in the social network as well, social capital theory advocates that an actor with social capital is able to access resources through the networks. Based on these perspectives, the objectives of this study are stated as below:

1) To examine the effects of intellectual capital on employees' innovative behavior in the workplace and a firm's absorptive capacity, and alternative factors that can impact a firm's organizational effectiveness.

2) To obtain empirical evidences about the benefits of intellectual capital, innovative behavior in the workplace, and absorptive capability of a firm in helping the improvement of organizational effectiveness.

3) To prospect the moderating effect of social capital with intellectual capital on employees' innovative behavior in the workplace and the absorptive capacity of a firm.

4) To provide academic and practical contributions to organizational management studies.

1.5 The Scope of the Study

The scope of this study is to explore the inter-relationships among the independent variable which is intellectual capital (human capital, structural capital,

and customer capital), the dependent variables which are innovative behavior in the workplace (idea generation, idea promotion, and idea realization), the absorptive capacity of a firm (acquisition, assimilation, transformation, and exploitation), and organizational effectiveness, and the moderating variable which is social capital (structural, relational and cognitive capital). This study will only focus on the service industry since operating service-oriented enterprises is dissimilar from operating other kinds of firms (Bowen & Ford, 2002). In general, service firms are different from manufacturers, especially in terms of the intangibility of service output (Prajogo, 2006). Manufacturers mainly produce tangible output by applying ordered and standard procedures (Boyt & Harvey, 1997). Evangelista and Sirilli (1995) clarify some main features of service firms with specific to their production and innovation. One special is most of information content are intangible, so it is difficult of realizing the innovation itself. The other is that human resources play an important role in service production, so that knowledge and experiences of individuals can have effects on the innovation and production. Scholars also mentioned that the solution of the service firms have abundant, intangible assets and information with objects that are not the transfer of a tangible commodity in the market transactions (George & Barksdale, 1974; Vargo & Lusch, 2004). Thus, scholars found knowledge is the chief element for sustaining competitive advantage, even more important than tangible assets, especially in the services industry (Curado, 2008; Gratton & Ghoshal, 2003). Moreover, this study is limited to Thai listed companies of the services industry at the SET and MAI. There are reasons to choose Thai listed companies in the service industry for this investigation as follows. First of all, intellectual capital and social capital were measured primarily in western countries and developed countries, and some Chinese scholars have found the worth of intangible assets or intellectual capital in organizations, so they started to explore and measure them (D. Li & Wang, 2009; Zhao, Chen, & Wang, 2009). However, few scholars paid attention to South Asian countries or developing countries. Moreover, the knowledge-based economy has become a trend in Thailand, more and more people are realizing that intangible assets are able to bring benefits for organizations. Therefore, it is necessary to investigate the intellectual capital of Thai organizations. Next, most scholars emphasize the importance of social capital in entrepreneurship organizations, but it has the same

weight in all sizes of organizations since social capital could bring valuable profits into organizations. Lastly, organizational effectiveness is mostly tested in manufacturing or production industries, few scholars step in the services industry. Nowadays, service is a new driver of growth in Thailand because lots of foreign businesses and foreign tourists are attracted.

1.6 The Benefits of the Study

This study is expected to contribute to scholarly knowledge. The study results will enhance academic knowledge in relation to intellectual capital with the absorptive capacity of a firm and innovative behavior in the workplace, and their impacts on organizational effectiveness in the services industry under the Thai context. The study examines how intangible assets will be effectively applied within dynamic organizational processes for improving organizational effectiveness eventually. This topic has not been sufficiently researched, especially in the service industry and developing countries. All efforts of this study could lead to a more complete perception of how knowledge management systems actually work in organizations, especially service-oriented organizations. Particularly, this study adapted reliable and accurate research methods consistent with international standards that will be useful to not only Thai academics, but also academics in other developing countries. Moreover, the study does not follow previous studies by focusing on a single case. This study will test the model across firms, so the model study could apply to other similar types of firms and developing countries. The results of the study concerning social capital as a moderator affecting intangible assets can be used to examine the relationship between internal members, possessed resources in an organization, and the effectiveness of organizational structure. Further, these research results provide the improvement of understanding organizational effectiveness, so that will contribute to strategy formulation and implementation. Based on the consequences of this study, there will be encouragement of exploring and exploiting intellectual capital, which will benefit organizations through creating more value from intangible resources and providing implications for superior managers about managing intellectual capital in their organizations. Finally, these research findings

will benefit the enhancement of innovative behavior in the workplace to maintain the sustained competitive advantage of organizations; the improvement of absorptive capacity to develop the efficiency and effectiveness of organizations.

CHAPTER 2

LITERATURE REVIEW

2.1 Background

2.1.1 Service Industry

Clark (1967 quoted in Karvalics , 2007) firstly defined three sectors of the economy as stages of economic growth which are the primary, secondary and tertiary sectors, or to put them in other general names, - agriculture, industry, and service sectors. The concept of the third (tertiary) sector was introduced in 1994 by Clark, and then called attention to the rising importance of services. Moreover, Clark (1967 quoted in Karvalics, 2007) indicated that the economy should be demarcated into sectors so that every sector demonstrates significantly various characteristics. Depending on different points of view, scholars divided sectors dissimilarly. In Fisher (1939) approach, for instance, "the structure of consumers' demand" is the basis for distinguishing the sectors. As claimed by this approach, the primary sector includes most essential raw materials used to produce goods for prolonged life. The secondary covers all manufacturing activities planned to build a more or less standardized demand. Fisher was the initiator to stick the label "tertiary" on the services industry and states it relates to every new type of consumers' demand (Wolfe, 1955). Fourastié (1951) definition of economic sectors is acknowledged as a more positive approach. In this definition, the primary sector focuses on agricultural activities and the secondary activities for nonagricultural activities. Conversely, activities of the tertiary sector only slightly enjoyed technical progress in a time period. Bell (1976) clarifies activities of each economic sector as follows: agriculture, oil, gas, mining, fishing, and timber belong to the primary sector; manufacturing, goods-producing, durable products, non-durable products, and construction industry are part of the secondary sector; and the services industry is divided into three sectors involving tertiary (transportation and utilities), quaternary (trade, finance, insurance, real estate), and

quinary (health, education, research, government, and recreation). Later on, Wolfe (1955) concluded that the primary sector relates to an increase in productivity and is bounded by factors of natural growth; the secondary sector describes mechanical factors; and the tertiary sector presents relatively human skill. Kuznets (1973) grouped sectors in the broadest term by focusing on only three key sectors which are agriculture, industry, and services, and points out five main differences between these three sectors, which are different in the use of natural resources, the business scale of each production unit, the engaged production process, the contributed final products, and the shares in total output and resources used. Kenessey (1987) compared the sectors with four elements of the work process and concluded the primary, secondary, tertiary and quaternary sectors are apparently fixed with extraction, processing, delivery and information accordingly. In conclusion, the primary sector or agricultural is regarded as industries of raw materials for food and biomaterial; basically, they are from nature. The process of utilizing the raw material from agricultural industries and transformation belong to the secondary sector or industry. The tertiary sector is essentially a service industry that includes the rest of producing non-material sectors such as transportation, telecommunication, business, education, and public relations etc. Wolfe (1955) mentions the service industry is the most heterogeneous sector of all. The finance, universities, research institutes, banks, government, etc. belong to the service industry, and they affect the development of a country in a contemporary information society. As is the tendency of a knowledge-intensive economy, data, information, and knowledge play a vital role, and they are constructed and dealt with especially by the service sector (Miozzo, 2003). In addition, Bell (1976) assumed that the growth of the services sector corresponded with an increase in white-collar employment. This assumption resembles the study of Ebling et al. (1998 quoted in Hipp & Grupp, 2005), which concludes that opportunities for skilled and highly qualified persons have greatly increased as the transition to a service society has taken place. Thus, Yan and Yao (1997) conclude that the level of growth of the services industry is a significant symbol to measure the modernization and internationalization of urban economies and societies. This composition is also in line with the statistics of value added to gross domestic product (GDP) in the world by the service industry recorded in the data of World Bank national accounts and Organization for Economic

Co-operation and Development (OECD) National Accounts, which is illustrated in Figure 2.1. As shown in the data, the service industry contribution to the world's GDP has maintained an upward trend since 2006, and generated more than 50% of GDP all over the world. It also goes along with a study by Azer, Hamzah, Mohamad, and Abdullah (2016) on the contribution of economic sectors to Malaysian GDP which mentioned that Malaysia is a high middle-income country; in addition, the services sector produced the highest contribution to Malaysia's economic growth, which dominated 55 percent of GDP. As stated by Kumar and Kumar (2016), the services sector has contributed approximately 52 percent to the GDP in 2014 to 2015; above all, services share in world GDP was 65.9 percent in 2012. In short, the services sector has become one of the speediest growing sectors of the economy.

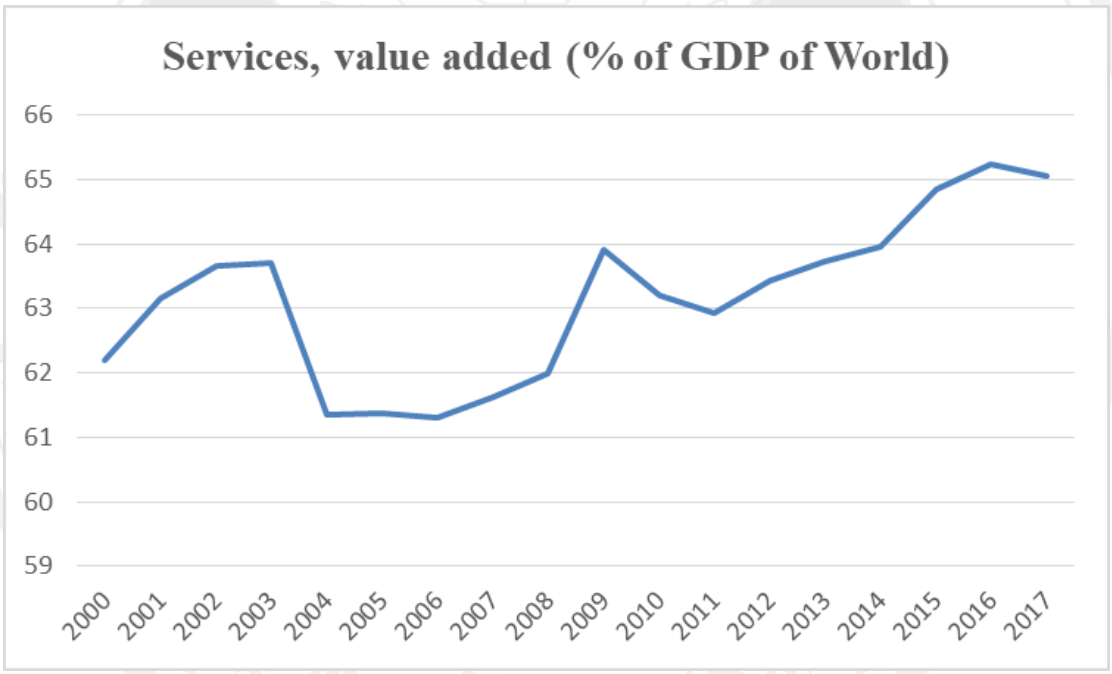


Figure 2.1 Service Sector Share to GDP

An increasing number of researches raised in the service sector due to an implicit assumption presented that the services sector will require more intellectual capital and knowledge management in an organization (Curado, 2008; Erickson & Rothberg, 2015; Stewart, 1998). For instance, a study of Erickson and Rothberg (2015) investigated knowledge assets in the service industry and compared the

proportion of organizational value to tangible and intangible assets for 517 large firms for the years 1993 to 1996, as well as over 2000 enterprises between 2005 and 2009. The results showed that non-services firms had a higher ratio in the dataset, implying more knowledge assets, 3.638 to 3.115. By the period of the later statistical set, service-oriented firms showed a significantly higher ratio, 2.918 to 2.533. Even though the data showed a decline for both services and non-services, scholars insist the continuous development and exploitation of knowledge and intellectual assets are substantial to support business improvement and competitiveness (Dahiyat, 2015; Mehralian, Nazari, Akhavan, & Rasekh, 2014; Ramadan, Dahiyat, Bontis, & Al-Dalahmeh, 2017).

2.1.2 Service Industry in Thailand

A study of Koonnathamdee (2013) on the service sector in Thailand mentioned there are several descriptions for services depending on derivation in addition to terms of use in Thailand. The National Economic and Social Development Board of Thailand (NESDB) regards the services sector as all economic activities except for those in the agriculture, manufacturing, and mining and quarry sectors. However, there is a different definition as the standard for academics and scholars proposed by the General Agreement on Trade in Services (GATS) which is applied in this study as well, and the scope of services is listed as Table 2.1.

Table 2.1 Scope of Services from GATS

Scope of Services: the General Agreement on Trade in Services (GATS) Concept	
Business services	Communication services
Construction and related Engineering services	Distribution services
Educational services	Environmental services
Financial services	Health-related and Social services
Tourism and Travel-related services	Recreational, Cultural, and Sporting services

Scope of Services: the General Agreement on Trade in Services (GATS) Concept	
Transport services	Other services not included elsewhere

In Thailand, the SET categorized all listed companies into industry groups and sectors. As claimed by the SET, companies running in services, excluding financial services, and information or technology services, or other specialized services already classified, belong to the services industry group. Under this classification, there are seven sectors under the services industry group, which are Professional Services, Transportation & Logistics, Tourism & Leisure, Health Care Services, Media & Publishing, and Commerce. On the basis of the GATS concept, the industry groups of Financials and Property & Construction are also considered as part of the service industry in this study. The SET defines Financials are companies involved in providing financial services, which includes three sectors of Banking, Finance & Securities, and Insurance. In addition, there are four sectors under the industry group of Property & Construction. However, three sectors, Construction Materials, Construction Service, and Property Fund & Real Estate Investment Trust (REITs), will be excluded in this study since they relate to producing, constructing, and investment which do not emphasize intangibles. As a result, there is only Property Development included in this study, which involves companies of developing property for sales or rentals, and working as agents or brokers for sale or leasing property. Even though this study adopted the GAT's service industry definition, the technology industry was excluded from the study. The reason being was that this study focused on the effects of intellectual capital on employees' innovative behavior in the workplace and a firm's absorptive capacity which specifically target on intangible outputs as a result from the firms' services. Therefore, the technology industry does not fall into this category as many firms are manufacturers or distributing equipment for information and communication technology rather than provide services.

Koonnathamdee (2013) also mentions that Thailand is an upper-middle income country. According to the statistic on Statista (2019) illustrated in Figure 2.2,

among the three economic sectors, the services sector had contributed more than 50%; moreover, it has been the largest percentage to Thailand's GDP over the period 2007 to 2017.

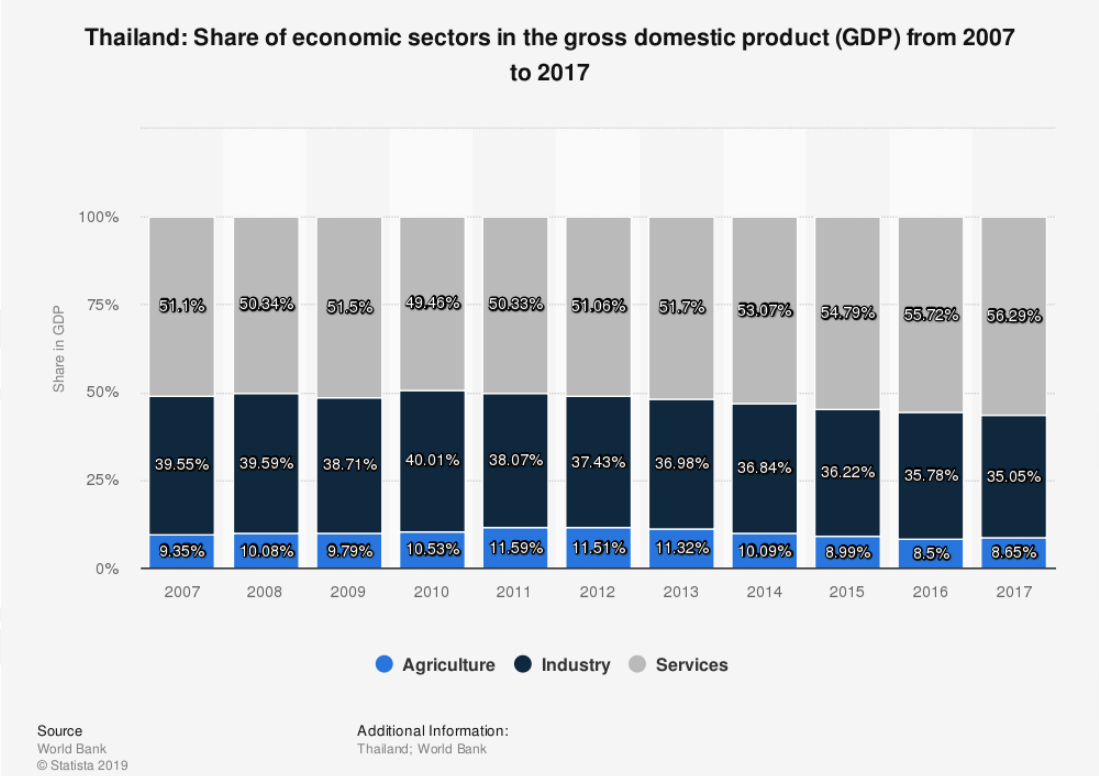


Figure 2.2 Shared GDP of Each Sectors of Thailand from 2007 to 2017

The contribution of the service sector in Thailand is in line with scholars' and practitioners' predictions. For instance, Kaothien (1991) argues that the configuration of final demand in Thailand will transpose to services as income rises for both public and private organizations. Lo and Salih (1978) also argued that the failures of the growth pole approach are caused by emphasizing manufacturing productivity as the primary goal; moreover, the sectoral efficiency curves suggest that the efficiency of the tertiary industry increases with the expansion of city scale. In another word, the tertiary sector potentially executes a significant role in the procedure of urban development. NESDB (2019) conducted a report that shows the contribution of the services sector on the economic growth of Thailand from 1993 to 2018 and presented

a “smile curve”, as illustrated in Figure 2.3. The smile curve indicates the importance of the service sector is not only increasing but also has become the largest contribution to Thailand’s GDP. Therefore, the additional strategy of Thailand should follow this pattern due to its rapid changing of the Thai economy.

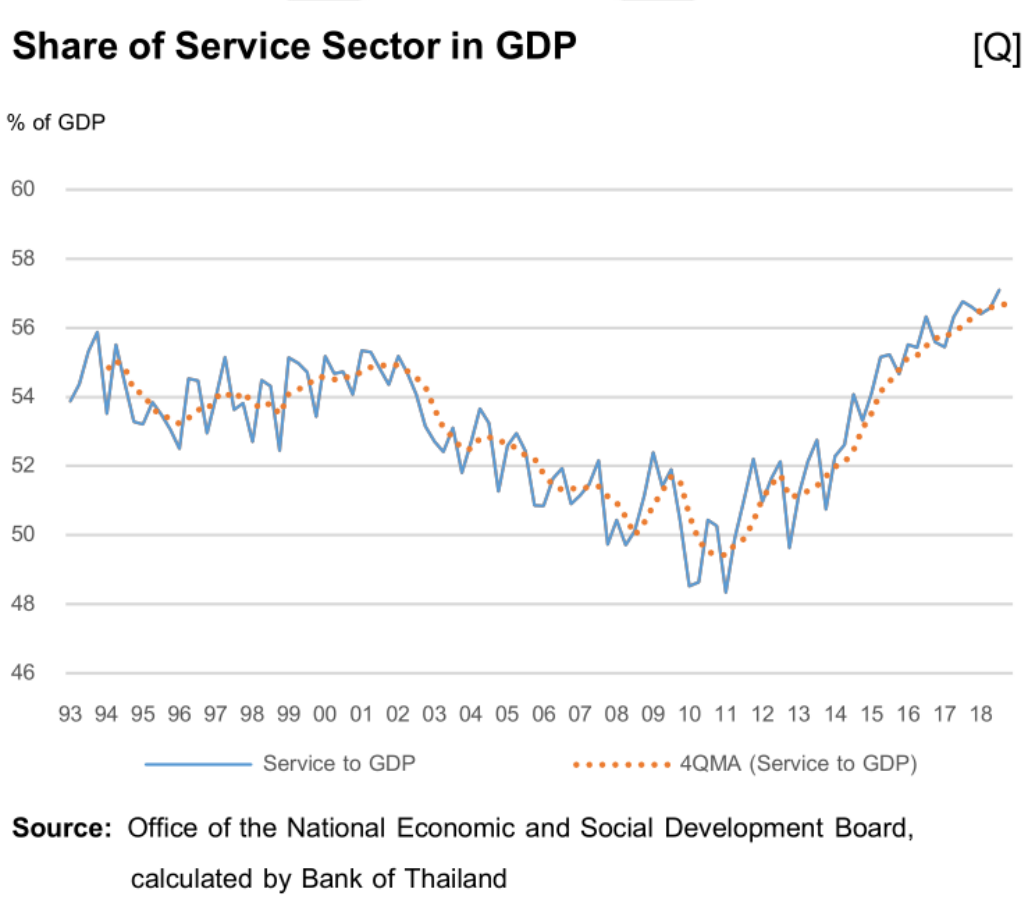


Figure 2.3 Share of Service Sector in GDP in Thailand

2.1.3 The SET and MAI

According to the study, it will focus on companies with capabilities and that are in the stock market. The SET sets a high priority on the capital market and increases efficiencies as well as enhances competitiveness. Therefore, the listed companies of the SET and MAI are able to be the representatives of Thailand since they have to face the rapidly changing environment. On the other hand, the study could generate reliable results from these companies. The Securities Exchange of Thailand was officially established on April 30, 1975, and formally renamed to the

Stock Exchange of Thailand (SET). The SET is responsible for acting as the center for the trading of listed securities, to promote securities trading, to conduct any business relating to securities trading, and to assume any other business approved by the SET. The core operations of the SET include listing securities, supervising information disclosure, tending securities trading, monitoring member companies, and disseminating information and education to investors. In particular, the SET has its own unique characteristics based on its serving economic system, such as gold prices, the minimum loan rate, the Thai baht, etc. (Sutheebanjard & Premchaiswadi, 2010). The Market for Alternative Investment (MAI) was founded under the Securities and Exchange Act, for the purpose of providing alternative financial opportunities for innovative companies with high potential for growth and a wider range of investment options for investors. MAI officially began operations in 1999. The SET has classified listed companies into eight industry groups and 28 sectors which has been effective since February 19, 2015. The eight industry groups are Property & Construction, Consumer Products, Agro & Food, Industrials, Resources, Financials, Services, as well as Technology. In the industry group of Agro & Food Industry, there are two sectors, Food & Beverage and Agribusiness, involved companies of agricultural product processing, raising livestock, plantation, forestry, and food and beverage production. The sectors of Home & Office Products, Fashion, and Personal Products & Pharmaceuticals belong to the Consumer Products industry group; moreover, these sectors include companies producing or distributing necessary or luxury consumer goods. In Financials, there are companies involved in providing financial services, so that comprises sectors of Finance & Securities, Banking, and Insurance. In the Industrials industry group, the sectors are Industrial Materials & Machinery, Petrochemicals & Chemicals, Automotive, Packaging, Paper & Printing Materials, and Steel, which are companies involved in constructing or assigning general raw materials that can be used in many industries. The Property & Construction industry group includes sectors of Property Development, Construction Services, Construction Materials, and Property Fund & Real Estate Investment Trust. For the Resources industry group, these companies relate to searching or managing resources, like producing or supplying fuel or mining, which constitute Energy & Utilities, and Mining sectors. Excluding financial services, information, technology services, and

other classified services, the rest of the service industry companies are classified into the Services industry group; to be specific, the sectors are Media & Publishing, Commerce, Professional Services, Health Care Services, Tourism & Leisure, and Transportation & Logistics. The final industry group is Technology, which is constituted of two sectors of Information & Communication Technology and Electronic Components.

2.1.4 Knowledge Management, Intangible Assets, and Intellectual Capital

The notion of Wiig (1997) that knowledge will become the basis of success in the twenty-first century has been widely affirmed nowadays. For instance, Hussi (2004) mentioned that the trend of business is transferring from mass-production to knowledge-intensiveness; thus, knowledge has developed into a powerful tool for corporate competition (Shih et al., 2010). Knowledge, however, is hard to measure (Matoskova, 2016). When knowledge of a firm is utilized, value creation existed; when it remains unused, knowledge is degraded (Pike, Rylander, & Roos, 2002). Thus, knowledge management is regarded as a strategic concern (Curado, 2008). In essence, knowledge management is viewed as management processes and activities to enhance the effectiveness of acquiring, creating, and sustaining organizational intellectual assets (Marr, Gupta, Pike, & Roos, 2003), which aims at enabling enterprises to attain the most value out of their knowledge assets (Wiig, 1997). More specifically, scholars regard knowledge management as systematic, comprehensive, and cyclically-interrelated processes for coordinating intra-organizational activities, including the acquisition, creation, storage, sharing, diffusion, development, and deployment of knowledge by individuals and groups for the purpose of attaining the central goals of a firm (Andreeva & Kianto, 2011; Gold et al., 2001; Nonaka, 1994; Rastogi, 2002). These processes are often deemed as knowledge management processes, which are defined as the acquisition, creation, documentation, transfer, and application of knowledge (Filius, de Jong, & Roelofs, 2000; Ramadan et al., 2017; Seleim & Khalil, 2011). Knowledge acquisition relates to an organization’s capacity to recognize, acquire, and organize knowledge from external sources for the purpose of its operation (Ramadan et al., 2017; Zahra & George, 2002). Knowledge creation

describes an organization's ability to grow new and useful ideas, solutions, insights, skills, and knowledge from existing or new organizational activities (Andreeva & Kianto, 2011). Knowledge documentation is the process to formalize and codify knowledge to be institutionalized by residing in the organization in various forms including databases, manuals, working procedures, and reports (Lee, Leong, Hew, & Ooi, 2013). Knowledge transfer is an intra-organizational process that depends on social interaction involving the exchange and dissemination of existing knowledge, experience, and skills among individuals, groups, and organizational units (Bhatt, 2001; Hoegl, Parboteeah, & Munson, 2003). The last procedure of knowledge management, knowledge application, means activities for the actual use of knowledge through embedding knowledge into the direction, process, and conventions of the organization (Dahiyat, 2015; Gold et al., 2001; Grant, 1996).

In the broadest context, knowledge management is regarded as the routine of engaging and expanding individual and collective knowledge within an organization for the purpose of promoting innovation through knowledge transferring and continuous learning (Hallin & Marnburg, 2008). In the context of knowledge assets, knowledge represents the collective body of identified and measurable intangible assets. Intangible assets have often been defined as intellectual capital or knowledge assets in organizations and research studies (Hussi, 2004; Malhotra, 2000; OECD, 2011). Nowadays, the term intangible asset is broader than in the past and focuses on R&D, key personnel, and software. In the opinion of Ahonen (2000), intangible assets are categorized into generative intangibles and commercially exploitable intangibles. A firm’s current performance depends on its commercially exploitable intangibles which contain immaterial property rights, customer capital, excessive demand, efficient production, and reliable management (Hussi, 2004). To be more specific, the study of OECD (2011) grouped intangibles into three types. The first type is computerized information, such as databases and software; the second type relates to innovative property consisting of copyrights, trademarks, designs, scientific and nonscientific R&D; and the last type concerns economic competencies which involves brand equity, professional human capital, organizational know-how, networks joining people and institutions, advertising components and marketing factors. Traditionally, intellectual capital is defined as being composed of three components including the

human facets, intra-organizational structures, and the external environment (Hussi, 2004). It can be seen that intangible assets consist of three elements that are those of intellectual capital. Scholars conclude that intellectual capital is an intangible asset (Stewart, 1998; Sveiby, 1997a), thus researchers and practitioners apply both concepts interchangeably. However, even though two concepts are based on the same model, there is a difference between them. The intangible asset takes advantage of the static nature, but intellectual capital is concerned with the dynamic processes. In another word, intangible assets are just static stocks, but intellectual capital is the dynamic procedure to create interaction among these elements (Hussi, 2004). Thus, the concept of intellectual capital has been broadening to involve all intangibles in a firm representing employees' skills, know-how, expertise, managerial processes and procedures, organizational structure, cultural values, as well as intellectual property of an organization (Bontis, 2001; Stewart, 1997).

No matter intangible assets or intellectual capital, scholars conclude that a firm's capacity to manage this kind of resource and knowledge management capacity are inseparably linked to each other; besides, to measure the intellectual capital of a firm is one of the major trends in knowledge management (Bontis, 1998; Gold et al., 2001; Gupta et al., 2000). In fact, scholars found that intellectual capital relates to a knowledge stock which is managed and generated through dynamic processes related to managing the flow of knowledge (Bontis, Crossan, & Hulland, 2002; Choo & Bontis, 2002; Rajesh, Pugazhendhi, & Ganesh, 2011; Rastogi, 2002). Rastogi (2002) also stated that the terms knowledge management and intellectual capital are related to and involve all parts of intellectual activities within an organization from knowledge acquisition to knowledge leverage. For instance, the human capital of a firm's intellectual capital can be enhanced through knowledge acquisition processes since the cognitive attitude, skills, and competences of organizational knowledge workers can be improved (Ramadan et al., 2017). To sum up, it can be affirmed that a firm's capacity to organize its intellectual capital is inseparably linked to its knowledge management capacity. Moreover, managing this knowledge stock in an organization belongs to the field of knowledge management (Choo & Bontis, 2002). Knowledge management is also a method of improving organizational effectiveness and competitiveness; thus, based on this perspective, this study applies the concept of

intellectual capital as the main independent variable for better measuring and analyzing intangible assets, knowledge management, and ultimately the impact on organizational effectiveness in the organization.

2.2 Related Literatures and Theories

For this study, organizational effectiveness and its determinants are observed. In the majority of the researches on organizational effectiveness, scholars and practitioners have defined it as a dynamic process to achieve an objective. Working through the previous studies, scholars found there are multidimensional determinants that impact organizational effectiveness. One widely applied paper by Gold et al. (2001) proposed that knowledge management processes significantly and positively affect organizational effectiveness. Thus, knowledge becomes a necessary resource to an organization, which is consistent with resource-based theory. As claimed by the resource-based theory, the vital resources or capabilities to an organization should be valuable, rare, inimitable, and non-substitutable (Barney, 1991). However, resources cannot create value themselves, thus processes are needed in an organization such as the absorptive capacity of a firm. According to absorptive capacity theory, absorptive capacity can facilitate the competitive advantages of an organization since this capacity is relates to the ability to identify, assimilate, transform, and exploit external knowledge (Zahra & George, 2002). The Relational view, an extension of the resource-based view, mentions that the ways to gather competitive advantages are not only from firm-level resources but also relations embedded in the network relations (Yli-Renko et al., 2001). As a consequence, social capital is an important factor in an organization since its abilities such as collecting information, managing knowledge, and responding to intensive market changes et al. can have a positive impact on organizational effectiveness. Taking these factors into account, absorptive capacity theory, resource-based theory, and social capital theory are discussed in detail below.

2.2.1 Absorptive Capacity Theory

In the era of the knowledge-based economy, the methods of creating value in an enterprise are changing. The internal valuable, rare, imitable, and non-substitutable

resources of an enterprise become the sustained competitive advantage of an enterprise to gain greater performance (Barney, 1991). Scholars found there are performance differences among different enterprises engaged in the same products or services; moreover, they realize that absorptive capacity is one of the significant causes to facilitate organizational performance. Absorptive capacity was firstly presented by Cohen and Levinthal (1989) and refers to the ability of an organization to identify, assimilate, and exploit external knowledge. Later on, Cohen and Levinthal (1990) recalled the same relationship but extended the perspective on absorptive capacity from the level of individuals to organizations. This paper redefines absorptive capacity as an organization's capability to value, assimilate, and utilize new, external knowledge for commercial purposes. It is also the most widely accepted and used definition in absorptive capacity research. In addition, the paper suggests absorptive capacity is a by-product of previous activities of innovation and problem solving, which relies on organizational members' individual absorptive capacity. In other words, the development of absorptive capacity is based on investment in individual organizational members, cumulative exploitation, and the ability to organize knowledge sharing and internal communication.

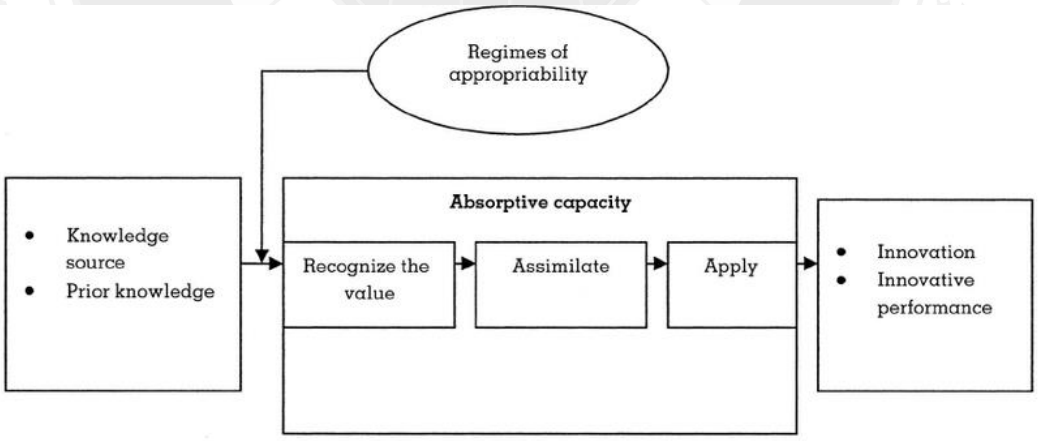


Figure 2.4 Absorptive Capacity Model of Cohen and Levinthal (1990)

But most of all, the absorptive capacity model presented in this paper is the most classical model (Figure 2.4). This model concentrates on the assimilation and exploitation of knowledge and states that it is a single-loop learning process. Cohen

and Levinthal (1990) also mentioned that the effect of previous relevant knowledge and experience on absorptive capacity will be varied by regimes of appropriability. Cohen and Levinthal (1994) adjusted the definition of absorptive capacity again as the ability not only empowers the organization to make the best use of new external knowledge, but also permits it to foresee more accurately the nature of future technological benefits. In other words, investing in absorptive capacity allows an organization to predict technological trends more accurately and to take advantage of rising opportunities before its competitors realize them. In the same perspective, Lane and Lubatkin (1998) discussed absorptive capacity at the organizational level as well. They divided an organization into two categories which are student and teacher, and then conceive that the ability of the student to learn from the teacher depends on their similarities in knowledge basis, organizational structure, incentive policies, and dominant logic. This dyadic definition implies the wider range of knowledge a student owns, the wider range of teachers from whom the student can learn. Later on, Lane, Koka, and Pathak (2006) come up with a process-based definition to regard absorptive capacity as a corporate ability to utilize external knowledge via the sequential procedures of exploratory, transformative and exploitative learning. Exploratory learning is in line with the notion of potential absorptive capacity which is relevant to an organization acquiring external knowledge (Zahra & George, 2002). Therefore, the exploratory learning of a firm enables the firm to identify and understand potential and valuable external new knowledge. The concept of realized absorptive capacity is also proposed by Zahra and George (2002), which reflects exploitative learning. In this learning process, an organization utilizes assimilated knowledge to build innovative activities and produce commercial consequences. Transformative learning takes the role of linking the two steps above, and it stands for retaining knowledge over time (Garud & Nayyar, 1994). In other words, an organization is able to assimilate valuable new knowledge through transformative learning. These papers are based on organizational learning theory and addressed absorptive capacity as a three-dimensional concept including identity and value, assimilation, and exploitation. For instance, when an enterprise has the ability to recognize and evaluate external knowledge, the enterprise could develop their corporate knowledge in certain fields of science and technology; and consider the

linkage between the areas and their products and markets through their R&D activities. Later on, attained external knowledge could facilitate sharing internally while the enterprise develops their internal processes, policies, and procedures. At last, the enterprise also becomes skilled at using the attained and assimilated knowledge, so that they could use the knowledge in forecasting technological trends, creating products and markets, and execute in business strategically. Therefore, these processes define an organization's absorptive capacity.

Much of the literature applied the three-dimensional perspective on absorptive capacity before 1990. In later years, however, many scholars extended the three dimensions of absorptive capacity into four dimensions for better understanding and application (Chen, Jiang, & Chen, 2011; Flatten, Engelen, Zahra, & Brettel, 2011; Zahra & George, 2002). Four-dimensional absorptive capacity was raised by Zahra and George (2002), which deeply affected the later papers. On the basis of Cohen and Levinthal (1990) definition, a process perspective on absorptive capacity was adopted by Zahra and George (2002), and defines absorptive capacity as a dynamic capability of a firm that exists in a set of organizational routines and procedures which enables a firm to acquire, assimilate, transform and exploit knowledge. They classified absorptive capacity as potential and realized parts. In this classification, potential absorptive capacity comprises knowledge acquisition and assimilation capabilities (Zahra & George, 2002). In more detail, enterprises could acquire and assimilate the external knowledge that enters the organization, so that the evaluated external valuable knowledge can be assimilated after its acquisition. The other, realized absorptive capacity, centers on knowledge transformation and exploitation.

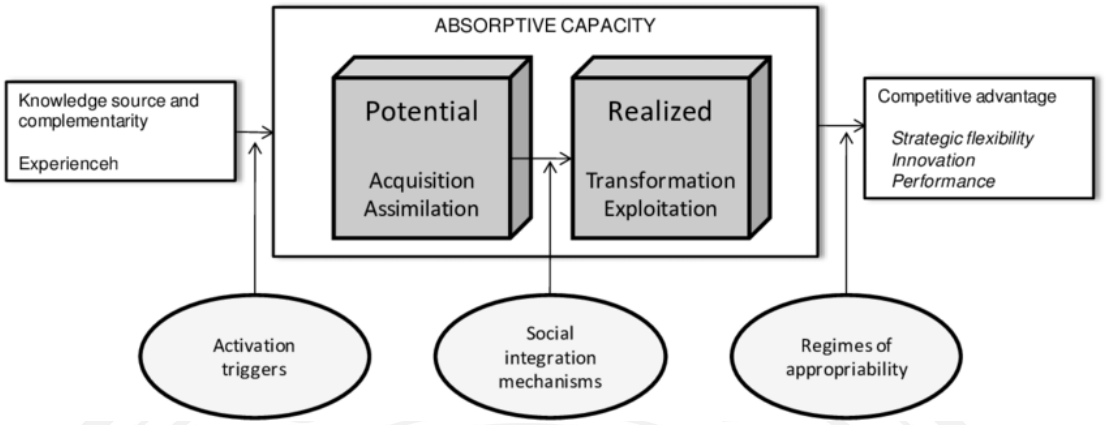


Figure 2.5 Absorptive Capacity Model of Zahra and George (2002)

The above model (Figure 2.5) shows dynamic capabilities as the core, and it shows external knowledge sources and complementarity, and the experiences of an organization significantly affect the enterprise's potential absorptive capacity. Then, there is a process of transformation from potential absorptive capacity towards realized absorptive capacity. Lastly, the benefits from absorptive capacity are that the competitive advantage of an enterprise is strengthened, so that it could positively influence the flexibility, innovation, and performance of an organization. This model also reflects the dynamic nature of absorptive capacity, which suggests that social integration mechanisms should be considered during the transformative process of potential capacity into realized capacity. The following parts will explain this model in detail.

2.2.1.1 Dimensions of Absorptive Capacity

As mentioned above, potential and realized absorptive capacity construct the absorptive capacity model in a four-dimensional perspective (Zahra & George, 2002). Potential absorptive capacity comprises acquisition and assimilation. It is in harmony with Lane and Lubatkin (1998) who state that potential absorptive capacity enables firms to gather and assimilate external knowledge. In addition, it also seizes the description of corporate capacity to value and collect external knowledge which is raised by Cohen and Levinthal (1990); however, it does not ensure the process of exploiting knowledge. There are two processes in the potential absorptive capacity. One is acquisition, which indicates the corporate ability to recognize and

gain external knowledge that is substantial to its business. Moreover, there are three attributes that can affect knowledge acquisition routines in organizations. Kim (1997) concludes the greater the effort of an organization to recognize and collect knowledge, the more quickly the organization will construct necessary capabilities. Therefore, the quality of the acquisition capabilities of an organization can be determined by the intensity and speed of an organization's attempt to realize and assemble knowledge. The direction of knowledge accumulation can also affect the path of enterprises to acquire external knowledge. As Rocha (1999) found, there is a need to have various areas of expertise within an organization in order to successfully import external technologies, since various activities are rich and complicated. The other is assimilation, which means the internal routines and procedures of a firm enable it to manage, convert, and understand the information, ideas, or knowledge acquired from external sources. If an organization comprehends external ideas and discoveries, then it can boost knowledge assimilation routines. Therefore, the organization is allowed to process and internalize the acquired external knowledge. However, comprehension of the knowledge can be delayed if the knowledge is tacit or complex. Scholars found that enterprises will omit ideas and discoveries that are not in their search zone due to the fact that exceeding ideas and discoveries are not easy to comprehend (Rosenkopf & Nerkar, 2001). Szulanski (1996) states that some knowledge is a specific context that could prevent outsiders from understanding or replicating it. In addition, it is particularly difficult to comprehend when the valued knowledge relies on the existing complementary assets that may not be achievable to the recipient enterprise (Teece, 1981).

Zahra and George (2002) propose that transformation and exploitation are central components of realized absorptive capacity, which reflects the capacity of an enterprise to leverage absorbed knowledge. The process of transformation denotes the ability of an enterprise to facilitate combining the existing, newly acquired, and assimilated knowledge through developing along with refining its routines. During this transformative process, an enterprise will add or delete knowledge or just simply interpret the identical knowledge in a dissimilar way. Therefore, Zahra and George (2002) conclude that the transformation capability capacity of an enterprise is to identify two apparently inconsistent sets of information and then combine them into a

new pattern. This capacity encourages enterprises to produce new insights, to realize opportunities, and also to change the way the enterprise sees itself and its strategies in a rival environment. In addition, some genius of new competencies can be found through these various activities. It is in line with the claims of studies in the entrepreneurship research field (Christensen, Suárez, & Utterback, 1998; Zahra, Ireland, & Hitt, 2000), such as Smith and Gregorio (2002), who state that this capability fosters entrepreneurial action. The last process of absorptive capacity, exploitation, is a corporate capability dependent on the routine of an enterprise that allows it to filter, enlarge, and leverage current capacities or create new ones by combining acquired and transformed knowledge into its operation. Scholars conclude that exploitation reflects the ability of an enterprise to acquire knowledge and incorporate it into its business undertaking (Van Den Bosch, Volberda, & De Boer, 1999). Zahra and George (2002) pointed out the vital emphasis of exploitation is on the routines. Therefore, Spender (1996) concludes that new commodities, systems, procedures, knowledge, or new organizational forms are created through systematic exploitation routines. In other words, exploitation is brainstorming routines of organizational internal members based on utilizing the created and internalized knowledge.

The four dimensions of absorptive capacity have been clarified in the above part. These dimensions are mutually constructed, so absorptive capacity becomes a consistent dynamic capacity to promote organizational changes as well as evolution. Each dimension has its own function in the enterprise; however, potential and realized absorptive capacities have separate but complementary roles (Zahra & George, 2002). The two subsets of absorptive capacity always coexist and satisfy the necessary but insufficient conditions for improving enterprise performance (Zahra & George, 2002). Put another way, enterprises may not be able to exploit knowledge if they don’t acquire it at the beginning. Similarly, enterprises are capable to collect and absorb knowledge but might not have the ability to convert and exploit the knowledge for commercial purposes. Therefore, potential and realized absorptive capacities supplement each other. It does not imply that the enterprise can improve their performance when they have high potential absorptive capacity. The performance of an enterprise could be improved when they are incorporating knowledge which is

transformed and exploited from the assimilated routines into operations of the enterprise.

2.2.1.2 Factors Effect on Absorptive Capacity

As claimed by the model of absorptive capacity (Zahra & George, 2002), prior knowledge sources and experiences are the factors which affect the absorptive capacity of enterprises at first. Cohen and Levinthal (1990) also stated that these two factors are the key variables to influence absorptive capacity. Lane and Lubatkin (1998) utilized three independent variables, a similar knowledge base and organizational structure, compensation policies, and dominant logics to explain teacher and student organization and the relative absorptive capacity of 'teacher' and 'student' organization. In addition, Lane et al. (2006) emphasized there is a need to focus more on the attributes of absorbing knowledge. Knowledge attributes are an important antecedent of external knowledge to influence the acquisition and assimilation of an enterprise, and many scholars focus on tacit knowledge and complexity (Yeoh, 2009). Nonaka (1994) says tacit knowledge is an accumulation of implicit and unwritten skills through learning-by-doing rooted in actions, commitments, and specific situations that are difficult to articulate in formal language; moreover, this kind of knowledge will be achieved only through the receivers themselves personal practice or practical knowledge. Grant (1996) points out that if most of the knowledge relating to the production is implicit, then knowledge transfer will be difficult between organizational members. The difficulty is raised when others do not know the causality or the causality is ambiguous. In consequence, the absorptive capacity of an enterprise is affected indeed no matter in potential or realized routines. For example, if the knowledge is implicit, then the enterprise has to take a longer time to acquire and assimilate it. On the other hand, the enterprise may operate many times based on trying and then get the essence of the knowledge when the acquired knowledge is tacit; finally, the enterprise is able to utilize this knowledge in their purpose of operation. The other attribute of knowledge is the complexity of knowledge. Simonin (1999) defines complexity knowledge as referring to the extent to which technology, operation, individuals, and resources are interdependent with specific knowledge or assets. For instance, once the knowledge is complex, the enterprise has to exert more various aspects of knowledge for understanding and

assimilating the knowledge in a particular situation. As a consequence, the speed of absorbing will be affected certainly. Knowledge similarity is the other significant antecedent of external knowledge to effect relative absorptive capacity and organization-wide learning (Lin & Xu, 2010). Similarities of knowledge refer to the extent to which the knowledge of the enterprise is similar to the knowledge of external sources. The most notable concept of relative absorptive capacity is proposed by Lane and Lubatkin (1998), they analyze the absorptive capacity by taking a standpoint of relations between student enterprise and teacher enterprise and then state that the absorptive capacity of a student will be distinct due to the differences of teachers. It also denotes acquisition and assimilation will be greater if the sender and receiver own similar knowledge bases. Ahuja and Katila (2001) support this point of view as well, that the acquiring enterprise and acquiree should have sufficiently similar knowledge in order to promote interorganizational learning, so that knowledge will be assimilated effectively.

Some scholars analyze the factors within the organization that affect the absorptive capacity of enterprises, and they mainly focus on experience, organizational structure, strategies, and so on. Lin and Xu (2010) defined experience as outcomes of enterprises scanning context, contacting customers, and associating with other enterprises; moreover, some experience may be gained through the learning-by-doing process. Tripsas and Gavetti (2000) thought experience significantly affects the cognition of managers and then ultimately determines the ability of management knowledge in enterprises. In general, as Zahra and George (2002) mention, experience develops new practices in the organization and influences how it searches and what it will focus on in the future; at the same time, experience affects the corporate capacity to gather and absorb new knowledge. Lane, Salk, and Lyles (2001) mentioned that organizational structure sets up a platform for sharing, exchanging, and transferring individual knowledge among organizational members; furthermore, it performs a critical role in promoting the transfer and absorption of knowledge within an enterprise. However, knowledge transfer might be difficult due to the following characteristics proposed by Szulanski (1996). Szulanski (1996) used the term “internal stickiness” to analyze the difficulty of knowledge transfer which has been widely applied in the strategy literature (Porter, 1991). According to

Szulanski (1996), there are four groups of factors that affect the difficulty of knowledge transfer. First of all is the features of the knowledge transferred. Causal ambiguity is one factor that causes difficulty in the transfer of knowledge. It is hard to replicate a capacity if the elements of production and the way they interact throughout the time of production are uncertain (Lippman & Rumelt, 1982). For instance, a skincare company may produce a similar product as its replicating product of the other company; however, it is hard or even impossible for it to replicate the exact same product with the same effect. Even though all ingredients are presented on the package of a product, how those ingredients are processed during production is unknown to outsiders. The problem of causal ambiguity often occurs when the knowledge is a tacit human skill, imperfectly understood by the receiver, or the particular reasons for success or failure are unable to be determined through past economic development. In addition, knowledge is also difficult to transfer if there is no proven record of past useful cases (Rogers, 1983). Secondly, knowledge transfer is impacted by traits of the source of knowledge which are mainly focusing on the two following situations (Szulanski, 1996). The first situation is a lack of motivation of the knowledge source, in which the knowledge holder may not be willing to share the important knowledge due to some reasons such as fear of losing his or her privileged position. The other situation is the source unit is not rated as a reliable, trustful, or knowledgeable source. As a consequence, the sources are likely to be tested or even refused, so that causes more difficulty in initiating knowledge transferring (Walton, 1975). Next, characteristics of the knowledge receiver are also important antecedents to influence knowledge transfer. No matter if the knowledge recipient is lacking motivation, absorptive capacity, or retentive capacity, knowledge transferring is definitely affected. Zaltman, Duncan, and Holbek (1973) found that a lack of motivation can lead to procrastination, passivity, pretending acceptance, secretly sabotaging, or whole rejection in the implementation and utilization of new knowledge. Scholars conclude that the transfer of knowledge is effective when the knowledge is retained (Druckman & Rober, 1991; Zaltman et al., 1973). The last set of factors impacting the difficulty of knowledge transfer is context. As we know, a seed will grow better in fertile land. Same as seed planting, the context of an organization can facilitate or hinder the knowledge transferring. Prior research

illustrates some aspects of organizational context involving formal systems and structure, coordinative sources, professional sources, and so on (Burgelman, 1983). Into the bargain, the entire relationship between the source unit and the recipient unit belongs to the dimension of the context. Nonaka (1994) states that it may require plentiful individual exchanges if the knowledge transferred has tacit components. It is clear that the difficulty in knowledge transfer might be created by an exhausting relationship.

2.2.1.3 Contingency Factors in the Model

The absorptive model of Zahra and George (2002) suggests there are three contingency factors moderating the effect of the absorptive capacity of organizations. The first is regimes of appropriability, which relates to the systems and industry dynamics that affect the abilities of an enterprise to protect their advantages and benefits from new products or processes (Antonelli, 1999; Buzzacchi, Colombo, & Mariotti, 1995). Cohen and Levinthal (1990) considered regimes of appropriability as the moderator between antecedent variables of absorptive capacity and absorptive capacity itself; moreover, they think knowledge spillover will drive enterprises to increase investment in research and development, but the weak appropriability means the income gained from external knowledge absorbed by enterprises is also low. Conversely, Boisot and Griffiths (1999) thought knowledge spillover decreases the motivation of enterprises to invest in R&D activities. Since the imitation of competitors will be everywhere, high spillover makes this kind of knowledge become a public good, which can be obtained at a low cost by competitors; as a consequence, it is unwise to make an investment in research and development. Zahra and George (2002) found that appropriability has moderating effects between absorptive capacity and its outcomes. They point when the appropriability is at a high degree, imitation of competitors can be difficult due to the high cost; therefore, enterprises can protect their knowledge assets and sustainably gain profits from their investment. The benefits of realized absorptive capacity are substantial, and this causes the differences in effectiveness between enterprises. The next is activation triggers, involving events that motivate or drive an organization to acknowledge a particular internal or external stimulus or shock (Winter, 2000). They can be internal or external events. Based on prior researches (Fosfuri & Tribó, 2008; Kim, 1998; March, 1991; Winter, 2000), the

internal activation triggers refer to organizational events like a major change in strategy or revolution in organizational design, which can be reflected by an organizational crisis. Kim (1998) emphasizes that even a negative crisis is able to promote an enterprise learning new skills and developing the knowledge to strengthen its absorptive capacity. The external activation triggers relate to activities that may affect the future development of the area in which the enterprise operates, mainly the change of rules and regulations, transfer of technology paradigm, destructive innovation, etc. These internal or external events will trigger or strengthen the efforts of enterprises in searching for external knowledge and enabling the enterprise to assimilate the relevant knowledge. For that reason, Todorova and Durisin (2007) consider activation triggers as the moderator between external knowledge sources and the absorptive capacity of a firm to positively moderate the relations of them. The last, social integration mechanisms, analyzes the influences of socialization on the behaviors of organizational members; moreover, they indicate the degree to which organizational members can understand the legitimate behavior of enterprises, so as to form the common norms of an enterprise's values and communication between organizational members (Kogut & Zander, 1996). Spender (1996) mentions that sharing relevant knowledge among organizational members is a condition of knowledge exploitation; therefore, social integration mechanisms can facilitate sharing by formal or informal structures. Garwin (1993) also emphasized sharing among organizational members can promote mutual understanding and comprehension. In the analysis of the process of transforming absorptive capacity from potential to realized, Zahra and George (2002) thought social integration mechanisms promote knowledge sharing, benefit knowledge assimilation, and finally boost knowledge exploitation. They decrease the barriers in assimilation and transformation; in other words, social integration mechanisms positively moderate the gap between the potential and realized absorptive capacity, so that the absorptive capacity of enterprises is enhanced.

From the above descriptions, it is obvious that absorptive capacity not only allows enterprises to leverage up-to-date external knowledge, but also enables them to accurately predict future technological trends and seize opportunities before competitors become aware of them. Lane et al. (2006) also mention that it is vital to

develop and maintain the absorptive capacity of an enterprise in order to achieve long-term success and survival, due to the fact that absorptive capacity is able to consolidate, complement, or refocus the knowledgeable foundation of the enterprise. In addition, some scholars found out that absorptive capacity affects not only the speed, frequency, and amplitude of innovation, but the knowledge generated from innovative activities will become a segment of the absorptive capacity of enterprises (Kim & Kogut, 1996; Van Den Bosch et al., 1999). As a consequence, absorptive capacity is a critical variable for enterprises to improve their innovative abilities. When an enterprise invests more in its absorptive capacity, it will acquire more external new knowledge and increase its accumulation of knowledge; and then, knowledge is applied to product or service innovation through the sharing of knowledge within the enterprise. A number of scholars suggest that the cause-related diversification of absorptive capacity will lead to better organizational effectiveness (Ahuja & Katila, 2001; Kim & Kogut, 1996). In addition, in the new economic era of the 21st century, knowledge has become a critical factor for an organization. No matter if it is internal or external knowledge, enterprises must have the abilities to transfer it first, and then utilize it for their purpose. For such reasons, a number of scholars point out that it is not free for enterprises to acquire external knowledge. Enterprises are able to understand, evaluate, and use external knowledge only when they have a large amount of knowledge and are equipped with absorptive capacity first (Cohen & Levinthal, 1989; Harabi, 1997; Upadhyayula & Kumar, 2004).

2.2.2 Resource-Based Theory

Competitive advantage is significant to the survival of an organization in the dynamic and competitive environment of modern times. Thus, knowing sources of competitive advantage has become a main field for scholars and practitioners in strategic management (Barney, 1991). Theoretically, the resource-based theory explains the reasons behind the differences between enterprises, as well as proposes ways for firms to achieve and maintain competitive advantage (Tovstiga & Tulugurova, 2007; Xu & Xia, 2007). Regarding the resource-based theory, a firm's capabilities or resources were the main determinants to explain the consequences of performance or competitive advantages (Newbert, 2007). The first publication related

to the resource-based theory on the perspective of strategic management was by Wernerfelt (1984). Following this perspective, many scholars made important contributions to developing resource-based theory afterward. For instance, Barney was one of the vital contributors and he began a shift from a resource-based view toward resource-based theory (Barney & Clark, 2007). The resource-based theory of firms (Wernerfelt, 1984) states that compared with the external environment, the internal environment of an enterprise is more decisive and meaningful to create competitive advantages in the market. This statement is in line with the concept of Penrose and Pitelis (1959), that is, the growth of an enterprise is restricted not only by external factors such as market competition, but also by operating resources and organizational capabilities. Thus, the internal organizing capability and the accumulation of resources and knowledge are key for an enterprise to acquire profit and sustain the competitive advantage (Wernerfelt, 1984). According to what Barney (1991) drew from Daft (1983), corporate resources incorporate the sum of corporate assets, information, knowledge, capabilities, attributes, organizational processes, human resources, physical resources, and organizational resources driven by an enterprise and enable an enterprise to develop and operate strategies to develop its effectiveness and efficiency. To be classified, firm resources can be grouped into three categories which are physical, human, and organizational capital resources. Physical capital resources relate to operational physical technology, geographic location, plants, equipment, and pathways to raw materials in an enterprise (Williamson, 1973). Instruction, relationships, experience, estimation, intelligence, and perception of individual managers and employees of an enterprise are ranged into human capital resources (Becker, 1964). Organizational capital resources incorporate formal reporting structure, coordinating system, formal and informal planning, and control in an enterprise, in addition to informal relationships between groups within an organization and those in its environments. In addition, Barney (1991) states that an enterprise owns a competitive advantage when it is managing a strategy of value creation; and this strategy is not being implemented by any other enterprises simultaneously. Moreover, if an enterprise is implementing the value-creating strategy which is not being managed simultaneously by any other enterprises on one hand, and other enterprises can not duplicate the benefits from this strategy on the other hand,

then the enterprise has a sustained competitive advantage. Porter (1980) also suggested, based on the resource-based theory of firms, a firm can reach a sustainable competitive advantage if it leverages internal resources to help protect against competitors as well as other external market forces that may negatively impact performance. Later on, Barney (1991) concluded that there are four attributes of corporate resources to obtain the potential of sustained competitive advantage. The first attribute is that the resources must be valuable. Firm resources are strong points that firms can utilize not only to conceive of and manage their strategies for improving their effectiveness and efficiency, but also explore chances or neutralize risks in a corporate environment. Secondly, the resources must be rare. In other words, an enterprise possesses a competitive advantage when they implement a strategy of value-creating which is not managed by many other enterprises at the same time. Thirdly, firm resources should be imperfectly imitable. When a resource fits a condition of unique historical criteria, social complexity, or causal ambiguity, it can be imitated imperfectly. Lastly, firm resources should be substituted by either similar sources or different firm sources. Under the fundamental assumptions, an enterprise will possess a competitive advantage when their firm's resources are valuable and rare; moreover, when firm resources are imperfectly imitable and non-substitutable simultaneously, then the firm has sustained competitive advantage and is able to own sustained performance.

Wernerfelt (1984) mentioned resources as any tangible and intangible elements that can be considered as the strengths or weaknesses of an enterprise, such as brand name, internal technical knowledge, skilled employees hired and utilized, trading relationships, machine equipment, effective procedures, and capital etc. According to the resource-based view, the intangible resources of a firm are more likely to contribute to a firm's acquiring and sustaining performance (Eisenhardt & Schoonhoven, 1996). It is consistent with the notion of intellectual capital, that is, intellectual capital may display in a form with explicit and intangible characteristics; besides, of the two, the intangible sort has the greatest potential impression on competitive performance (Tovstiga & Tulugurova, 2007). No matter whether resources are in tangible or intangible form, resource-based theory declares that organizations need to evaluate both preponderances and weaknesses of corporate

resources in order to choose an achievable strategy. Among them, human capital is regarded as a strategic resource to gain a firm's success (Subramaniam & Youndt, 2005), as well as accrue competitive advantage in certain circumstances (Wright, McMahan, & McWilliams, 1994). On the other hand, human capital refers to the conjoint knowledge, skills, innovation, and capacity of corporate employees, which is also regarded as the heart of intellectual capital (Bontis, Keow, & Richardson, 2000). As claimed by strategic management literature, the knowledge-based theory of the firm constructed the conceptual framework associated with intellectual capital (Tovstiga & Tulugurova, 2007). Essentially, the knowledge-based theory of the firm is an extension of the resource-based theory of the firm (Conner & Prahalad, 1996). Therefore, most studies mention that intellectual capital is grounded in resource-based view logic, and the resource-based view is equally relevant for understanding intellectual capital (Hsu & Wang, 2012; Reed et al., 2006); furthermore, management scholars and practitioners view intellectual capital as an essential determinant of business performance in firms since it is turned into the primary resource available in firms under technology-intensive circumstance (Tovstiga & Tulugurova, 2007).

2.2.3 Social Capital Theory

Social capital has transformed into a progressively popular concept in not only the social science domain, but also in organization studies. Adler and Kwon (2002) mention that organizational researchers before 2000 proved that social capital has effects on career success, recruitment for firms, resource exchange, turnover rate, product innovation, supplier relations, cross-functional team effectiveness, etc. (Burt, 1992; Fernandez, Castilla, & Moore, 2000; Hanson & Krackhardt, 1993; Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998; Uzzi, 1997). After 2000, Van Dijk, Hendriks, and Romo-Leroux (2016) conclude that social capital also has been much employed in the domain of international management research, such as general performance of MNCs, learning capabilities, knowledge spillovers, knowledge sharing in an international setting, etc. (Liu, Wright, Filatotchev, Dai, & Lu, 2010; Mäkelä, Andersson, & Seppälä, 2012; Prashantham & Floyd, 2012; S. Slater & Robson, 2012). However, social capital has been discussed by abundant scholars since the seminal works of Bourdieu (1986) and Coleman (1990). According to the various

understandings of the essence of social capital, Wu and Shi (2009) classify social capital into five perspectives which are resource, network, structure, ability, and feature. From the resource perspective, scholars regard a social relationship network as a specific existence, so social capital is considered as a resource that individuals can attain through their social network (Wu & Shi, 2009). In detail, social capital is the aggregation of actual and potential resources which are embedded, stemmed, or gained from the social networks of individuals or social units (Nahapiet & Ghoshal, 1998); in addition, the actor gains resources from specific social structures, then utilizes those resources to obtain benefits (Baker, 1990; Lin, 2001). From the network perspective, scholars regard the social network as the actor and consider the social relationship network as social capital (Wu & Shi, 2009). In other words, social capital is treated as the entirety of various relationship networks, and those networks are based on the mutual trust and cooperation between people of corporations. Based on the concept of structure, scholars consider the stable structure of a network as the antecedence to social capital; therefore, social capital stems from the constraint of social structure (Wu & Shi, 2009). Speaking of social capital, Adler and Kwon (2002) state this kind of resource depends on the social structure within which the actor is located and offers information, impact, and unity to the actor. From the perspective of ability, scholars emphasize the relationships within network members, and consider social capital as the resource power that could bring convenience to individual or corporates' actions (Wu & Shi, 2009). Portes (1998) proposed that social capital is the capability of actors to mobilize rare resources and secure benefits through their merit of membership in social networks or other social structures. In addition, putting the concern on the organizational level, Bian and Qiu (2000) mention that firms are the main actor in economic activities, and operating through various connections with others; therefore, organizational social capital exists when the firm possesses the ability to acquire rare resources through their corporate networks in the economic domain. The last view concerns features, including trust, norms of reciprocity, and other cultural norms of social capital. This view proposes that social capital means a feature of social organizations, such as value, system, faith, criterion, and beliefs, which enhances performance and collaboration for mutual benefits (Lee & Yang, 2000; Putnam, 1995).

Since there are various perspectives considered for social capital, the definitions of this concept from outstanding researchers are listed in Table 2.2.

Table 2.2 Definitions of Social Capital

Authors	**Definitions**
Bourdieu, 1986	Social capital is the aggregation of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition.
Coleman, 1988, 1990	Social capital is social structural resources owned by individuals as an asset, consisted by social structural elements, and exist within relations and structures, for providing convenience to internal members.
Putnam, 1993, 1995	Social capital is features of social organization, such as trust, norms, and networks, which facilitate action and cooperation for mutual benefit.
Portes, 1993, 1998	Social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structure.
Fukuyama, 1995	Social capital is an informal set of values or norms shared within members of a group that allows them to work together.
Nahapiet and Ghoshal, 1998	Social capital is the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit.
Bontis, 1999	Social capital is the combined value of the relationship with customers, suppliers, industry association and markets, and social capital represents the potential an organization possesses as a result of external intangibles.
Lin, 1982, 2001	Social capital is the investment and use of embedded

Authors	Definitions
	resources in social relations possessed by an individual or social unit.
Brown, 2000	Social capital is a processing system that allocates resources ion social network according to the relationship type of individuals.
Bian and Qiu, 2000	Social capital is a capacity of enterprises to acquire rare resources through their networks in the economic domain.
Adler and Kwon, 2002	Social capital is defined as a cluster of social resources that are derived from the relationships within the workplace.
Herreros, 2004	Social capital is the obligation of reciprocity that can be derived from relations of trust and the information that can be derived from the participation in social networks.
Van et al., 2016	Social capital is focuses on characteristics of social relationships and their influence on coordinated action.

Various definitions come from different levels of analysis, according to Brown et al. (2000), social capital can be discussed at the micro-, meso-, and macro-level. At the micro-level, social capital emphasizes individual abilities to mobilize potential resources which are embedded in social networks. The individual could be a person or an organization, and the network is limited to the individual (Wu & Shi, 2009). The quantity and quality of social capital owned by individuals are determined by three factors, the first is the heterogeneity of individuals' social network; the second is the social status of network members; and the last is the relational strength among the individual and network members (Bourdieu, 1986; Lin, 2001; Portes & Sensenbrenner, 1993). Social capital at the meso-level mainly focuses on the processes of structuring a network and the effects of its distribution. There are many forms of social capital; such as, Burt (1997) states that social capital is a type of norm created from relationships between people; moreover, it indicates that knowledge, education, and reputation depend on the position of an individual in a market or

hierarchy. Burt (1992) mentions “the structural hole” bridges two non-repetitive networks for acquiring more information, resources, and opportunities in order to gain benefits, then this benefit is regarded as the social capital of the actor. No matter what forms of social capital, they all rely on the stability of the social structure. There is more social capital in a closed social network than in an open social network, since its internal members depend on each other, and maintain mutual trust in the network. In addition, norms, beliefs, or other consciousness can promote or suppress the formation of social capital through shaping people’s faiths and values and influencing their actions (Wu & Shi, 2009). The last, macro-level of social capital, concerns the possession of social capital by a group, an organization, a society, or a community of a country (Brown et al., 2000), the processes of interaction between various macro factors and social capital, and the ways that a particular social capital network is embedded into a larger system of political and economic or cultural norms (Zhang, 2003). Putnam (1993) states that social capital is the characteristics of organizations, like trust, norms, networks, etc., to coordinate a team’s actions for enhancing efficiency. Even more important, scholars conclude trust is the main concept of social capital (Putnam, 1995). Based on this concept, Fukuyama (1995) points out that trust is normally built on particular cultural traditions. Therefore, social capital can not only be valuable for individuals, but also have effects on larger groups, even a community of a country. Wu and Shi (2009) summarize that social capital at the micro and meso levels is called external social capital, which comes from an actor, to help the actor to acquire resources and ability from external networks; in short, it functions as a bridge for resource exchanging. The macro-level of social capital is also called internal social capital, it enables groups to reach resources from collective networks, promoting communication and coordination, and strengthening internal cohesion; at last, it is the bonding to stabilize the collaborations within internal members of organizations (Adler & Kwon, 2002). In short, external social capital is owned by individuals for personal benefits; on the other side, internal social capital belongs to one group and provides public benefits for the group (Leana III & Van Buren, 1999).

The framework of Nahapiet and Ghoshal (1998) is mainly applied by most researchers to measure social capital, which is categorized into relational, structural,

and cognitive dimensions to investigate various domains as follows. The structural dimension concerns the overall paradigm of connections between actors, which emphasizes the impersonal aspects of networks, so it concentrates on the internal connections and structural characteristics of social networks such as system, norm, and degree, etc. (Nahapiet & Ghoshal, 1998). The relational dimension mainly concerns interpersonal trust, connectedness, and other personal relationships people have in a society, so it is the personal aspects of networks (Granovetter, 1992). The cognitive dimension represents the extent of similarity in understanding among network members, which are shared values, explanations, expositions, and systems of meaning (Nahapiet & Ghoshal, 1998). When socially defined behavior control is owned not by the actor but by others, there is a norm (Coleman, 1990), so this dimension is the highest level among the three facets. The other highly applied framework for investigating social capital is called “stakeholders value network”, which regards firms as network organizations created through internal and external networks. In detail, departments and employees from an internal network can build trustful relationships and communicational channels, so that knowledge and information can be transferred more quickly and organizational effectiveness can be improved eventually (Wu & Shi, 2009). Firms can also set relations with external network users, such as suppliers, universities, governments, competitors, etc., for the purpose of acquiring external resources (Yli-Renko et al., 2001). According to the above points, it is obvious that this framework divides social capital into internal and external types of social capital. The internal type comes from corporate internal networks and functions as a relational capital to promote information sharing, collective action, mutual communication, and resource exchange and combination among employees and functional departments (Wu & Shi, 2009). According to Bian and Qiu (2000), the external type can be split into three kinds of relations. The first is the vertical relation, which is related to the relations between firms and their superior organizations, departments of local government, and subordinate enterprises and departments. Next is the horizontal relation, concerned with the relations between the firm and other firms, such as business relations, cooperative relations, debtor-creditor relations, holding relations, etc. The last, social relation, is the relation between firms and organizations which do not have business connections. In short, the former

framework concerns the structure of networks in organizations, and the latter framework studies the possibility that "relationships" in enterprise networks can be utilized and bring resources.

2.3 Dependent Variables

2.3.1 Organizational Effectiveness

Organizational effectiveness is the most general and most important common objective of organizations. For instance, organizational researchers and scholars found a major reason for problems experienced is that most organization's executives do not know how to accurately measure their effectiveness (Hitt, 1988). Thus, in various organizational contexts, organizational effectiveness is regarded as the essential dependent variable, and it is characterized by multidimensionality which causes conceptual inconclusiveness and difficulties in measuring (Cameron, 1986; Chelladurai & Haggerty, 1991). Organizational effectiveness initially appeared in the organizational behavior theory in the 1950s (Davis, 2000). Later on, Scholars mentioned that organizational effectiveness is one of the most complicated and difficult problems in the field of social organization research (Georgopoulos & Tannenbaum, 1957). Initially, organizational effectiveness referred to an organization as a social system, given inevitable resources and methods, executes its objectives without the loss of its resources and methods, and without placing too much pressure on its members (Georgopoulos & Tannenbaum, 1957). Based on this perspective, scholars briefly defined organizational effectiveness as a process of achieving objectives without invalidating the means of an organization (Ghorpade, 1971 as cited in Davis, 2000). In the field of management research, McCann (2004) mentions that organizational effectiveness studies are focused on the unique capacity of an organization to achieve success through its core strategies. As a consequence, scholars conclude organizational effectiveness is the extent to which an organization achieves a prescriptive goal, or represents the outcome of organizational activities of an organization (Henri, 2004). In academic papers, some scholars do not use the term organizational effectiveness but discuss similar concepts of performance instead. Henri (2004) explains the terms "performance" and "effectiveness" are used

interchangeably since they are virtually equivalent in their definition, measurement, and explanation. To be more precise, compared to the term organizational performance, organizational effectiveness is a broader concept that includes organizational performance with a basis in organizational theory to achieve alternative performance objectives (Cameron & Whetten, 1983). In consensus with the concept of Cameron and Whetten (1983), Richard et al. (2009) differentiates these two terms by stating that organizational effectiveness is broader and able to capture organizational performance; moreover, it also contains vast internal performance results which are normally associated with more efficient or effective operations and other external measurements, involving broader considerations than those solely related to economic evaluation (Richard et al., 2009). The paper also states the term organizational performance comprises three particular domains of enterprise results, which are performance related to finance and product market, along with shareholder's return (Richard et al., 2009). Based on the prospect of the resource-based theory, scholars posit the resources of an enterprise incorporate entire assets, capacities, procedures, routines, elements, information, and knowledge of organizations which are manipulated by a firm (Barney, 1991). Zheng, Yang, and McLean (2010) conclude that three key organizational assets are organizational culture, structure, and strategy; moreover, they have been extensively investigated in their relationship with organizational effectiveness. Taking the knowledge-based view of the firm, numerous studies are concerned with how well knowledge management contributes to organizational effectiveness (Argote & Ingram, 2000). It means that the organization should know the reasons behind its activities outcome. When academic papers and organizational activities discuss knowledge management, they concern the efforts at the managerial level in promoting activities of gathering, creating, sharing, accumulating, spreading, improving, and allocating knowledge through individuals and groups (Demarest, 1997; Grant, 1996; Rowley, 2001; Soliman & Spooner, 2000). Among these aspects, scholars are concerned with the three processes of knowledge the most, which are generating, sharing, and utilizing knowledge. Knowledge generation is the process of an organization acquiring knowledge from outside sources and creating new knowledge from those sources (Davenport & Prusak, 1998). Knowledge sharing is the procedure among individuals or groups to transfer

knowledge from one to another (Davenport & Prusak, 1998). Gold et al. (2001) defines that knowledge utilization is the process that is oriented to the practical application of knowledge. On the other side, many scholars applied the framework of Gold et al. (2001) that underlies aspects of organizational effectiveness are in association with knowledge management capabilities. Additionally, Gold et al. (2001) concluded that efficiency, adaptability, and innovativeness are three important procedures of organizational effectiveness. According to the above views, it is important for an organization to possess resources and managerial skills to deal with these resources since they will contribute to organizational effectiveness.

However, research offers no consensus on the appropriate measures of organizational effectiveness (Davis, 2000), because there are no generally accepted conceptualizations prescribing the best criteria since organizational effectiveness means different things to different people (Cunningham, 1977; Shilbury & Moore, 2006). The following parts chronologically review the four major models of organizational effectiveness which are highly discussed and applied in research. The goal model is the initial and most widely used approach to evaluate organizational effectiveness through regarding effectiveness as goal attainment or the extent to which an organization achieves its internally defined targets (Cameron, 1980; Molnar & Rogers, 1976; Yuchtman & Seashore, 1967). The goal model focuses on internal factors, which emphasize the outputs of an organization and an organization's abilities to achieve its goals (Cameron, 1980; Cunningham, 1977; Molnar & Rogers, 1976; Sowa, Selden, & Sandfort, 2004). Therefore, an organization is evaluated by comparing the outcomes accomplished with those planned objectives. Cameron (1980) states the goal model is especially valuable when the objectives of an organization are unambiguous, consensual, and perceptible. Then, scholars state that the key and criteria of effectiveness are the degree to which an organization reaches its targets (Sowa et al., 2004; Strasser, Eveland, Cummins, Deniston, & Romani, 1981; Yuchtman & Seashore, 1967). In other words, if an organization achieves some defined objective, purpose, mission or goal, then it could be said to be operating effectively. Criteria of evaluating organizational effectiveness stem from a definition of expected goals of the organization (Etzioni, 1960; Warner & Havens, 1968). Therefore, Strasser et al. (1981) clearly interprets that evaluators of a goal model must

first recognize the set of dissimilar objects or purposes of the organization. Then, the evaluator must determine the degree to which the organization has achieved its objectives or goals. Thus, an entire evaluation of organizational effectiveness is made. To be concise, the main assumption of the goal model is, when objects or purposes are achieved, the organization is efficient and effective. In order to determine organizational goals, Molnar and Rogers (1976) conclude two approaches. One is to reach formal goals from statements of administrators, annual reports, or organizational charters. The other one is using operative goals which indicate the tasks and activities executed within an organization. Even though the goal model is widely used, scholars and practitioners realize some problems in this model. On one hand, the goal is specific for the organization and a single objective, so the single and specific set of evaluations could not be applied to other organizations, no matter if the organizations are in the same or similar categories. On the other hand, some organizations may be effective in different areas that are not in consensus with their determined goals. In addition, if the goals are not qualified, such as the goals are too low, misplaced, or destructive, an organization can be ineffective even if it attains those goals (Cameron, 1980). Thus, the goal model is suggested to be used when the organizational goals are clear, consensual, and measurable.

The system resource model presented by Yuchtman and Seashore (1967), defines the ability of an organization is to exploit its environment so as to acquire scarce and valuable resources from the environment for sustaining its functioning and achieving competitive advantages in marketplaces. This approach views the organization as a focal framework in an open system, and argues that resource acquisition, transformation, and disposal are three tightly interconnected basic processes in an organization; as a consequence, overall effectiveness is able to be evaluated at any point in the loop (Connolly, Conlon, & Deutsch, 1980). There are two main themes emphasized in this model (Yuchtman & Seashore, 1967), one is the distinctiveness of the organization as a recognizable structure or entity, which means formal organizations are not seen as phenomena incidental of individual behavior but as entities to be analyzed at their own level; the other is the relations between the organization and its environment as the pivotal source of information related to organizational effectiveness. In this conception, since the capacity of an organization

to maintain adequate resources for competitive advantages is the most important indicator of effectiveness, the inputs of an organization are more important than their outputs (Sowa et al., 2004). To be specific, each subsystem of an organization must meet underlying requirements in order to survive in the marketplace. Cunningham (1977) concludes some classifications of subsystems' needs, such as bargaining position, which is the ability of an organization to capture critical sources at a fair price (Yuchtman & Seashore, 1967); capacity to precisely observe and interpret the external environments; ability of the organization to respond to its environmental changes; ability of the organization to judge the influence of its decisions etc. Strasser et al. (1981) define the typical underlying criteria to organizational effectiveness of the system models into two aspects. One aspect focuses on internal maintenance criteria, which include the ability to coordinate subunits, cope with internal strain, and allocate resources optimally. The other concerns the external interaction criteria, which are the ability to adapt to changing environments, and acquire resources. According to the conception of the system resource, therefore, evaluators should focus on external factors in developing criteria of effectiveness instead of emphasizing on outputs. Just like the statement of Molnar and Rogers (1976) towards effectiveness, effective organizations are those that achieve greater resource inputs from their environments. Therefore, the system resource model is maximally valuable when there is an apparent relation between resources acquired by the organization and what it creates (Cameron, 1980). In addition, there are some advantages when applying the system resource model (Yuchtman & Seashore, 1967). First of all, the organization is seen as the frame of reference, so each subunit can be evaluated. Secondly, the core part of the definition is the relations between organizations; therefore, more resources inputs are into the organization. Thirdly, this general framework can be generalized, which means different types of organizations could apply this model to their effectiveness. Next, variability of measurement techniques is allowed in this model. Last but not least, the model provides guidelines for choosing empirical measurements of organizational effectiveness. However, typical criticisms also view some problems in the system resource model. For example, Cameron (1980) states that this model is not appropriate in all circumstances and with all types of organizations to evaluate effectiveness. For instance, an organization also can be

effective even when it does not achieve the most desirable resources. Anyhow, the system resource model is still important nowadays since competitive advantages are an essential part of an organization to survive in a dynamic environment.

The third method to determine organizational effectiveness extends to both the goal model and the systems model and mainly focuses on the internal health of an organization such as harmony, capability, excellence, and efficiency of utilizing resources (Cameron, 1980; Quinn & Rohrbaugh, 1981). Rojas (2000) states that the internal process model sees measurements, documentation, and information management as the ways to attain an organization's stability, control, and continuity. Therefore, in this model, effective organizations are those with the following criteria; such as an absence of internal strain, members are highly involved in the system, smooth internal functioning and information flowing both vertically and horizontally, trust and kindness toward individuals, and so on (Cameron, 1980). In other words, the greater extent of these internal characteristics the organization owns, the more effective organization is. Thus, the internal process model is the most appropriate when an obvious interaction exists between organizational processes and performance (Cameron, 1986). In addition, Quinn and Rohrbaugh (1981) mentioned this model would recommend orderly working conditions, adequate coordination, and dissemination of information for providing a circumstance of continuity and security for organizational participants. Like the goal model and the system resource model, this model is not suitable for all circumstances. On one hand, the presence of organizational slack and conflict often enhance long-term adaptation and innovativeness; moreover, organizations may be ineffective even if they have a healthy internal system (Cameron, 1980). On the other hand, this model does not evaluate the total output since it focuses on the process; moreover, the measurement could be highly subjective sometimes.

The emphasis on human resources leads to the last approach, the strategic constituencies model (Shilbury & Moore, 2006). After researching the goal model and the system resource model, Connolly, Conlon, and Deutsch proposed a multiple-constituency approach, which is called the strategic constituencies model later on. In the view of this model, scholars define organizational effectiveness as the degree to which major stakeholders are content with the performance of the firm (Cameron,

1980; Connolly et al., 1980). Moreover, Cameron (1980) states that the organizational effectiveness of this model depends on how well an organization answers to the requirements and anticipations of its strategic constituencies. Therefore, the views on effectiveness of the key stakeholders are considered vital (Connolly et al., 1980). Strategic constituencies are those with some substantial stake of an organization, who can be individuals or groups (Cameron, 1980). They include resource providers, users of the products or services provided by the organization, output producers of the organization, cooperative groups who are important to the organization's survival, or those who have a significant impact on an organization's functioning (Cameron, 1980). In general, there is a dependent relation between the strategic constituency and the organization. The strategic constituencies model to organizational effectiveness is also limited in that it does not apply in all circumstances as well. Friedlander and Pickle (1968) found that different groups of constituencies use different criteria for evaluating the effectiveness of an organization. As a consequence, an organization was measured effective by one group but ineffective by other groups. In addition, organizations can be evaluated as effective even if they do not complete the demands of constituencies (Cameron, 1980). Thus, constituencies have dominant impacts on an organization when their demands are needed to be responded by the organization, then the strategic constituencies model is counted useful.

2.3.2 Innovative Behavior

Under today's highly competitive circumstance, scholars propose that innovation is a vital factor in helping organizations survive in the dynamic market as well as a critical strategy for organizational effectiveness and competitiveness (Cingöz & Akdoğan, 2011; Damanpour, Walker, & Avellaneda, 2009; Kaufmann & Tödtling, 2002; Lin & Chen, 2007; Pundt, Martins, & Nerdinger, 2010). West and Farr (1990) introduced innovation as related to deliberately introducing and applying new ideas, procedures, or products that are relevant with adoptive units in a role, group, or organization for the significant profits of individuals, groups, organizations, or wider society. Thus, a significant number of scholars have studied innovation at different levels and found it has important impacts on business competition at individual, team, organization, and national levels (Anderson, Potočnik, & Zhou,

2014; Cefis & Marsili, 2006; Tellis, Prabhu, & Chandy, 2009). In this study, innovation at the organizational level has been considered; in addition, it refers to reactions to environmental changes or methods of bringing about organizational changes, which may involve technical innovations and administrative innovations (Damanpour & Evan, 1984). Based on Damanpour (1991) conceptualization, technical innovation refers to those occurring in the technical system of an organization which include products, services, and production process technology; administrative innovation are those taking place in the social system of an organization including organizational structure and administrative process. Innovation is an important factor of corporate competitiveness. In other words, a firm with innovative capability can gain a competitive advantage and then positively affect organizational growth and business performance (Jafri, 2010; Santos-Rodrigues & Figueroa, 2007; Stenholm, 2011). Chen et al. (2010) proposed that personnel are originators of innovation, which is in line with a statement of Cingöz and Akdoğan (2011), that is, developing, adopting, and implementing innovations in organizations extensively relies on employees' innovative behavior in the workplace. Moreover, an increasing number of studies found evidence that innovative behavior of employees is an important asset which is significant to organizational effectiveness and survival in a dynamic business environment (Cingöz & Akdoğan, 2011; Pieterse, Van Knippenberg, Schippers, & Stam, 2010). This is because employees with innovative behavior can rapidly and appropriately react to customers, come up with up-to-date ideas, propose new concepts and produce new products (Woodman, Sawyer, & Griffin, 1993), and empowered employees can persist through organizational and environmental barriers (Thomas & Velthouse, 1990). Thus, if employees of a firm can effectively carry out their innovative behavior, it will assist their firm's survival in the complicated business environment (Amabile, 1988).

With the purpose of benefiting role performance, the group or the organization, all individual behaviors that generate, introduce, and apply beneficial novelty at any organizational level can be regarded as innovative behaviors (Janssen, Van de Vliert, & West, 2004; Kleysen & Street, 2001; Scott & Bruce, 1994). Innovation behavior also can be understood as the employee's initiative to introduce new processes, products, markets, or a combination of these into the organization

(Åmo & Kolvereid, 2005; Kim, Lee, Paek, & Lee, 2013). In order to have a better understanding on elements of innovative behaviors, a study of developing and testing measurement of individual innovative behavior on a multi-dimensional perspective by Kleysen and Street (2001) identifies 289 innovation-related behaviors and categorizes them into five dimensions of formative investigation, opportunity exploration, championing, generativity, and application. In the report of this paper, the first factor of innovative behavior, opportunity exploration, relates to learning or discovering more innovation opportunities by behaviors of realizing opportunity sources, seeking chances to innovate, being aware of opportunities, or collecting information related to opportunities. Generativity relates to behaviors of creating beneficial change in an organization's growth, people, products, procedures, and services, involving three fundamental behaviors: producing ideas together with solutions to opportunities, bringing about illustration and categories of opportunities, and forming federations and merging ideas and information. The third factor, formative investigation, regards the formulation, experimentation, and evaluation of ideas and solutions. Next, championing makes up the socio-political behaviors included in procedures of innovation which are essential to recognizing the possible ideas, solutions, and innovations; to be more specific, they are reflected in resource mobilization, persuasion and influences, push and negotiation, as well as challenge and risk-taking. The last conjectured factor of innovative behavior is application, which includes attempting to make innovation a regular part of business through basic behaviors of implementing, modifying, and routinizing. Even though various innovation related behaviors have been examined in this study, the study stated that a multi-dimensional measure of innovative behavior was not produced; besides, the results did not offer empirical supports for the hypothesized factor framework. Thus, a majority of scholars follow the view of innovative behavior as a multi-stage process of problem recognition, ideas or solutions generation, support for ideas establishment, and idea implementation (Carmeli, Meitar, & Weisberg, 2006; Janssen, 2001; Janssen et al., 2004; Scott & Bruce, 1994).

From this perspective, scholars conclude the procedures of individual innovation at the workplace as follows (Janssen et al., 2004; Scott & Bruce, 1994). Individual innovation starts with problem recognition and idea generation, which is

producing innovative and valuable ideas in any field. The next step is promoting new ideas to potential supporters. That is, the innovative individual seeks friends, favorers, and sponsors to set up an alliance to become aware of the generated new idea. The last procedure concerns idea realization, which is, the innovative individual fulfills the idea through building a paradigm or model of innovation which is able to be touched and ultimately utilized among the role, group, or entire organization. In short, innovation is a multistage procedure with essential and various activities and individual behavior at every stage. Anyhow, an employee's innovative behavior is a significant and precious asset to his or her organization. To encourage personnel's innovative behavior, some studies have researched important determinants of innovative behavior, involving non-bureaucratic organizational structure, organizational culture, managerial support, empowerment practices, open communication, effective reward system, job characteristics, quality relations between superiors and subordinates, and individual diversities (Jafri, 2010; King, De Chermont, West, Dawson, & Hebl, 2007; Scott & Bruce, 1994). To be more systematic, a study of Anderson et al. (2014) has concluded innovation or creativity at different levels involving individual, team, organizational and multi-level. At the individual level, creativity is determined by individual factors, task context, and social context. Creativity at the team level is a result of individual innovative behavior which is influenced by structure, constitution, climate, procedures, and leadership style in a team. At the organizational level, Woodman et al. (1993) proposed innovation is a result of individual and group creativity, which can be affected by structure and strategy, size, resources, knowledge utilization and networks, management-related factors, external environment, culture and climate, etc.

2.3.3 Absorptive Capacity

According to the discussion of absorptive capacity theory in the previous part, it is well-known that Cohen and Levinthal (1989, 1990) firstly defined absorptive capacity as the ability to recognize, absorb, and exploit external knowledge for the commercial purpose of an organization. Later on, Zahra and George (2002) refine absorptive capacity as potential and realized parts with the total four processes, which correspond to the notion of the organizational learning processes; that is, the

exploratory learning concerns on acquiring external knowledge, which is consistent with the acquiring and assimilating processes of absorptive capacity (Lichtenthaler, 2009). Knowledge acquisition concentrates on a corporation's ability to recognize and attain valuable external knowledge that is dominant to its operators. Knowledge assimilation comprises the corporate routines and procedures that enable the organization to analyze, deal, convert, and catch on to the information generated from the external environment (Zahra & George, 2002). By adopting a process perspective, Zahra and George (2002) proposed that absorptive capacity should be defined as a dynamic capacity, and the processes of knowledge transformation and exploitation in the realized part reflect the concept of the realized exploitative learning, which focuses on transforming the assimilated knowledge and utilizing this knowledge (Lichtenthaler, 2009). Knowledge transformation comprises the capability of developing and extracting existing knowledge and then combining, acquiring, and assimilating knowledge to reach a new schema (Zahra & George, 2002). Knowledge exploitation is the competence to integrate new knowledge into business operation (Zahra & George, 2002). Improving and sustaining absorptive capacity is meaningful to the long-term survival and success for an enterprise, as it strengthens, complements, or refocuses the corporate knowledge base; moreover, it more accurately predicts future technology trends and seizes opportunities before competitors become aware (Cohen & Levinthal, 1990; Lane et al., 2006).

2.4 Independent Variable

2.4.1 Intellectual Capital

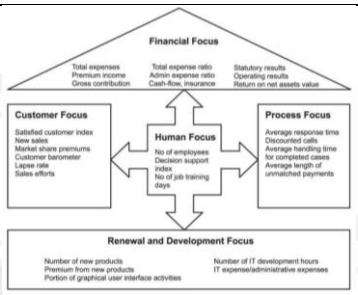
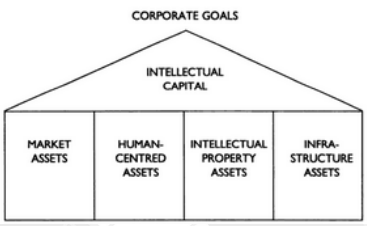
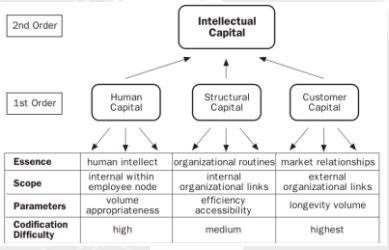
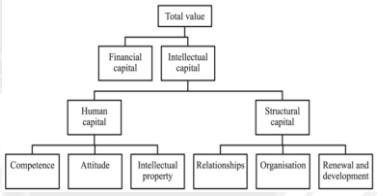
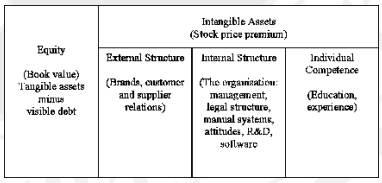
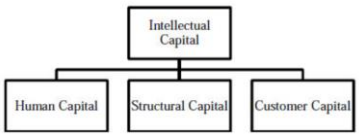
Knowledge has replaced tangible assets and material funding as the most significant resources (Chen, Zhu, & Xie, 2004; Marr et al., 2004). Knowledge has been redefined as a longer, more proper and crucial resource to gain as well as retain competitive advantages (Barney, 1991; Grant, 1996; Joia, 2000). Bontis (1998) points out that the position of chief knowledge officer has frequently and commonly appeared in annual reports and job advertisements. In the meanwhile, scholars found intellectual capital is a concept that enables managers to recognize and classify corporate knowledge assets (Roos et al., 1997; Stewart, 1997; Teece, 2000). Since the

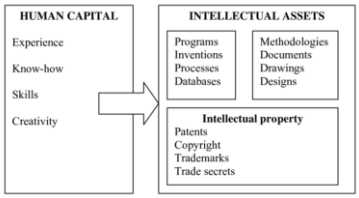
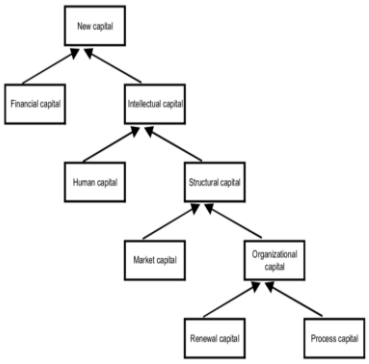
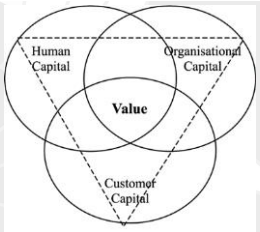
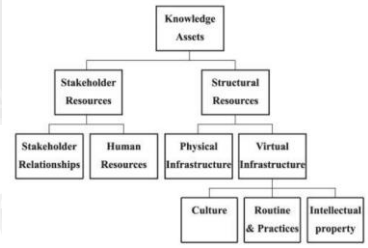
early 1990s, intellectual capital, also regarded as intangible assets, has been evolving (Marr & Chatzkel, 2004). It is viewed as the most pivotal resource for today's firms to survive in a dynamic business environment. In 1969, the concept of intellectual capital was initially brought up by Galbrainth (Zhao et al., 2009). The study states that intellectual capital is not only a static intangible asset in nature, but a process of effective knowledge utilization and a method to fulfill goals. However, Galbrainth did not completely define intellectual capital (Hong & Wu, 2005). In literature reviews of intellectual capital, scholars mention Stewart (1997) was the first to systematically define intellectual capital (Hong & Wu, 2005; Petty & Guthrie, 2000; Zhao et al., 2009). Stewart (1997) regards intellectual capital as the most valued asset owned by a firm, an organization, or a nation. Moreover, Stewart (1998) defines intellectual capital as intellectual material including experience, intellectual property, knowledge, and information that enables creating wealth; in short, collective brainpower. Working from a study of intellectual capital by Kaufmann and Schneider (2004), there are various definitions for intangibles; however, there are also diverse concepts to present dissimilar content referring to intellectual capital. In general, intellectual capital is a non-monetary asset without a physical body, but owns worth or can engender future advantages (Kwee, 2008).

Sullivan (2000) proposes that there are two independent but correlative paths on intellectual capital research. One is knowledge and ability, which is centered on the creation and expansion of knowledge owned by enterprises. The other is based on the resource, which focuses on how to generate profits from the intellectual resources of enterprises. The following Table 2.3 concludes the widely applied definitions and models of intellectual capital proposed by different scholars. Scholars have summarized the definitions for intellectual capital from extant papers since 1990's (Evangelia, 2006; Kwee, 2008; Maditinos, Sevic, & Tsairidis, 2010; Marr et al., 2002; Marr et al., 2004; Ståhle, 2008), which are chronologically listed as follows. The model of Skandia (1994) explains intellectual capital as the skills, the knowledge, and the technologies that create a competitive advantage for the purpose of gaining financial profits. In the model of Skandia, human capital and structural capital are major elements constructing intellectual capital; moreover, it mainly focuses on renewal and development, procedure, financial, human, and customer. Brooking

(1996) regards intellectual capital as infrastructure assets, intellectual property, and market assets. Bontis (1998) mentions that intellectual capital covers intellectual elements that can contribute to corporate value; moreover, it includes three aspects which are structural capital, human capital, and customer capital. Roos et al. (1997) state intellectual capital embraces thinking and non-thinking parts. The thinking part is human capital involving competence, attitude, and intellectual property; and the non-thinking part relates to structure capital that involves relationships, organization, and renewal and development. Sveiby (1997a) defines that intellectual capital has three types of intangibles; individual competence, internal structure, and external structure. Individual competence includes the internal structure of management, manual systems, organization, legal structure, attitudes R&D, and software; and external structure relates to brand, relations of customer and supplier; and individual education and experience. Stewart (1997, 1998) regards intellectual capital as formalized, captured, and leveraged intellectual material for creating valued assets; and those materials can be experience, information, knowledge, or intellectual property; moreover, it is in accordance with Bontis' (1998) concept of structural capital, human capital, and customer capital. Sullivan (1998) regards intellectual capital as knowledge that can be converted into profit which includes structural capital, human capital, and intellectual assets. Edvinsson and Malone (1997) state that intellectual capital is the aggregation of human capital together with structural capital which includes customer relations, professional competences, applied experience, and organizational technology that provide a competitive advantage to an organization. Canibano, García-Ayuso, Sánchez, and Olea (1999) regards intangible resources as assets in the extensive meaning, for instance, databases, intellectual property rights, logo, networks, and capabilities of the company which belong to relational capital, structural capital, and human capital. Marr et al. (2002) state stakeholder resources and structural resources are two organizational resources that are regarded as the sum of knowledge assets. Stakeholder relations and human resources cover the stakeholder resources; physical infrastructure, as well as virtual infrastructure, are included in the structural resources. The above definitions of intellectual capital are illustrated in Table 2.3.

Table 2.3 Definitions of Intellectual Capital

Authors	Definition of Intellectual Capital	Model	Cited from
Skandia (1994)	It is the knowledge, skills and the technologies that create a competitive advantage and therefore, attain financial profits.		Maditinos et al., 2010 ; Marr et al., 2004
Brooking (1996)	It is as market assets, intellectual property and infrastructure asset.		Kwee , 2008
Bontis (1998)	It involves intellectual attributes that can contribute value to a firm.		Kwee, 2008; Bontis, 1998
Roos et al. (1997)	It is composed of a thinking part, such as the human capital, and a non-thinking part, such as the structural capital.		Marr et al., 2004
Sveiby (1997)	It consists of three components of intangible assets which are internal structure, external structure and human competence.		Marr et al., 2004; Sveiby, 1997
Stewart (1997, 1998)	It is intellectual material, knowledge, information, intellectual property, experience, that has been formalized, captured and leveraged to create valued assets.		Marr et al., 2004; Kwee, 2008

Authors	Definition of Intellectual Capital	Model	Cited from
Sullivan (1998)	It is knowledge that can be converted into profit.		Marr et al., 2004
Edvinson & Malone (1997)	It is the sum of human capital and structural capital, which provides a competitive advantage toward an organization.		Marr et al., 2004; Ståhle, 2008
Meritum (2002)	It is intangible resources as assets in the broad sense such as intellectual property rights, trademarks, databases, networks and skills of the company.		Evangelia , 2006
Marr et al., (2002)	It is corporate knowledge assets which are the sum of two organizational resources, stakeholder resources and structural resources.		Marr et al., 2002, 2004

In addition, Li and Wang (2009) summarize five academic schools of intellectual capital research based on the existing achievements of prior years. The first is the school of accounting which takes views of the resource-based theory and the contractual theory of the firm. In the literature of accounting, an increasing number of scholars realize that the competitive advantages of enterprises can be created through not only individual knowledge, experiences, and abilities, but also the intangible resources of organizations such as organizational structure, culture, customer relations, reputation etc. Therefore, based on the perspective of the school of accounting, invisible or intangible assets, intellectual property capital, and intellectual

materials are considered as intellectual capital (Edvinsson, 1997; Lev, 2001; Sveiby, 1997b). For instance, Sveiby (1997a) considers that intellectual capital is the aggregation of three dimensions of an enterprise which are employee capability, inter structure, and extra structure. Edvinsson and Malone (1997) define the intangibles are assets that do not have physical existence but are still worthy to the enterprise. Similarly, Lev (2001) states an intangible asset is an asset without physical or financial (stock or bond) manifestation; however, it is a demand for future benefits. The school of accounting focuses on the evaluation and measurement of intellectual capital value, but also pays attention to its impacts on organizational performance, and its information presentation and disclosure (Brooking, 1996; Edvinsson & Malone, 1997; Oliver & Porta, 2006; Roos et al., 1997; Stewart, 1998; Sveiby, 1997b). The second school is on the perspective of knowledge management, and it is on the basis of the resource-based theory and the knowledge-based theory. The scholars of this school provide non-monetary indices to investigate intellectual capital; moreover, they explain and emphasize the ways to increase the value of an enterprise through the transformation of intellectual capital into knowledge (Brooking, 1997; Mouritsen, Bukh, Larsen, & Johansen, 2002; Nahapiet & Ghoshal, 1998; Stewart, 1998; Sullivan, 2000). Brooking (1997) defines intellectual capital as follows: knowledge, no matter if it is explicit or tacit; knowledge transfer processes, such as research and development, knowledge networks, organizational learning etc.; the final product of knowledge transferring, including patents, trademarks, and other assets which involve intellectual property (Petty & Guthrie, 2000). Moreover, Brooking (1997) stated knowledge and skills that can bring profits to an enterprise are counted as intellectual capital. Roos et al. (1997) mentioned intellectual capital is the aggregation of employee's capital and organizational capital. In addition, they indicate to manage the transformational process from individual to organizational knowledge is the main essence of intellectual capital management (Roos et al., 1997). In other words, it is important to focus on transforming internal or tacit knowledge to external or explicit knowledge of individuals, then this knowledge could be transferred as mutual knowledge of an organization, and finally, new knowledge could be created through communication within the organization. It can thus be seen, organizational knowledge is not the sum of individual knowledge since there are complicated processes of

knowledge integration and creation (Li & Wang, 2009). Therefore, in order to sufficiently utilize human capital in an organization, the organization needs to provide the necessary organizational capital (Bassi & Van Buren, 1999; Edvinsson, 1997). From the above, the school of knowledge management considers the comprehension of knowledge and capabilities of an enterprise as the intellectual capital of a firm. The third school is on the perspective of strategic management, and it is on the perspectives of dynamic capacity theory and extension of the resource-based theory. In the field of strategic management, scholars believe knowledge resources and capabilities are important strategic resources for enterprises. Knowledge strategy is a vital part of organizational strategy and the basis for formulating and implementing the organizational strategy. In addition, scholars conceive that enterprises should adjust knowledge strategy and organizational strategy according to the changes of internal and external environments (Bontis et al., 1999; Teece, 1998; Zack, 1999). There is a significant concept from this school, that intellectual capital is dynamic, so enterprises should underline the identification, management, and application of their intellectual capital. Therefore, there are two classification models for dimensions of intellectual capital. One model is widely recognized by considering the concept of Stewart (1997), which regards intellectual capital as the combination of customer or relational capital, structural or organizational capital, and human capital. This model is conducive to clear the organizational knowledge and ability, so that assists the incorporation and permission of those facets of intellectual capital and strategical purpose. The other model classifies the dimensions of intellectual capital according to its function, which are value creation and value acquisition (Sullivan, 2000). Value creation focuses on producing new knowledge, and converting knowledge into innovation with a commercial purpose. Value acquisition centers on the creation of explicit knowledge by internal human capital, and works on internal processes such as evaluation, decision-making, databases, transformation mechanisms, and asset management systems and capabilities etc. No matter which models, the main contributions from the school of strategical management are not only connecting the intellectual capital management with strategical management, but also building up a mode of long-term management. The next school is on the perspective of value chain, and it is based on the value chain theory along with corporate value theory. In this

school, scholars utilize the ways of value chain to identify, measure, and guide enterprises to create value (Kwee, 2008; Lev, 2001; Sullivan, 2000). In addition, scholars emphasize intellectual capital is the major driving factor of enterprise value creation; moreover, they also highlight the strategic value of an enterprise comes from its existing knowledge resources for finding new business areas (Brooking, 1997; Nonaka, Toyama, & Konno, 2000; Rastogi, 2002). In conclusion, the school of value chain mainly focuses on the ways intellectual capital creates and extracts value. By exploring the ways and methods to create value from intellectual capital, a firm is able to make a close interaction between intellectual capital and its worth, and finally explore the management methods and modes for maximizing enterprise value. The last school considers the perspective of human capital and is based on the human capital management theory and residual claim theory. In 1836, Senior initially suggested the term of intellectual capital as equivalent to human capital, and states it is regarded as individual knowledge and skills (Li & Wang, 2009). This school combines the methods of strategic management, in order to explore and analyze human capital's impacts on corporate sustainable competitive advantage performance. Therefore, this school emphasizes intelligence, which is a human factor. For instance, Hudson (1993) considers the intellectual capital of enterprises as the compound of four intangibles; genetic endowment, experience, education, and attitude towards work and living. To sum up, the school of human capital generally centers on three points. Firstly, the "intelligence" of enterprises is the core of human capital, which is recognized as a higher grade of human capital. Secondly, sources of value creation are from individual knowledge and skills of internal employees of an enterprise. Lastly, corporate human capital is a kind of resource for sustainable competitive advantages of a firm.

Diefenbach (2006) states there is no strict method to systematically outline and identify entire intangible resources. Therefore, Kwee (2008) concludes a categorization method instead of a defining way furnishes a greater pathway to pinpoint intellectual capital since it is without physical substance; moreover, it is relatively up-to-date and under developing terms, so it is difficult to define the scope of actions associated with intellectual capital. Numerous groups, no matter accounting or non-accounting perspective scholars, have strived to class intellectual capital. The

initial scholar who categorized intellectual capital from a non-accounting perspective is Sveiby (Kwee, 2008). Sveiby (1997a) proposes that employee (individual) capacity, internal structure, and external structure are three sub-categories to classify intangibles. In addition to intellectual properties, assets is added as the fourth category by Brooking (1997). The classification of intellectual capital proposed by Sveiby is widely accepted. Scholars applied Sveiby's (1997a) three categorizations, but termed them as human capital, organizational capital, and customer capital, respectively (Bontis, 1998; Edvinsson, 1997; Edvinsson & Malone, 1997; Mouritsen et al., 2002; Sullivan, 1998). Ordonez de Pablos (2004) also utilized the identical three-type classification of intellectual capital; however, the term "relational capital" was used to instead of "customer capital'. There are some other classifications of intellectual capital without doubt, for instance, Lev (2001) states that innovation, human resources, and organizational capital construct intellectual capital. However, evaluation of intellectual capital categorizations directs that a majority of scholars have adopted the three-grouped of intellectual capital framework involving human capital, structural (or organizational) capital, and customer (or relational) capital (Bontis et al., 2002; Canibano et al., 1999; Marr & Adams, 2004; Stewart, 1997; Sveiby, 1997b).

According to Stewart (1997), human capital indicates all kinds of skills and knowledge possessed by organizational employees, and it often exists in a potential way, which is unrecognized, difficult to be coded, and easy to be ignored. Chen et al. (2004) conclude human capital refers to skill, knowledge, capacity, as well as attitude of employees. It is not like other forms of intellectual capital, like structural capital, which is able to be possessed by a firm (Edvinsson & Malone, 1997; Stewart, 1998). Human capital is contained in the minds of employees. In other words, if an employee with intellectual materials does not work in the firm, the knowledge and skill of this employee could not be activated, or even converted into an asset of a firm. In more detail, human capital can be regarded as a mixture of the creativity, attitude, and capability of employees. Based on the study of Chen et al. (2004), capability of employees is the hard component of intellectual capital which includes knowledge, skills, talents, and expertise of an employee; attitude of employees is the soft part of intellectual capital which includes individual incentive for work and fulfillment from

work; and innovation of employees allows them to utilize knowledge flexibly and to contribute creativities in succession. Therefore, human capital is a vital foundation for organizational intellectual capital (Bontis, 1998; Chen et al., 2004). On one hand, human capital facilitates transforming knowledge into market value by turning other capitals into intellectual capital. On the other hand, human capital can shape the functioning pattern of the other capitals of intellectual capital, while other capitals can transform unsubstantial knowledge and information into substantial benefits and outputs, so complete the entire transformation consequently (Chen et al., 2004). More than that, Bontis (1998) mentions human capital is critical due to it being a fundamental source contributing to the strategic renewal and innovation of an enterprise. In a nutshell, human capital is a necessary part of intellectual capital possessed in organizational employees and a key factor to active intellectual capital. Structural capital, or also known as organizational capital, is termed as internal structure (Sveiby, 1997b), which is regarded as the support of transferring employees' knowledge and skills within the organization. Edvinsson and Malone (1997) describes structural capital as capabilities that do not depend on the human resources of the organization, both tangible and intangible factors. For intangible factors, it includes information technology, user data, operational processes, strategic plans, corporate culture, etc. of an organization. For tangible factors, it covers all valuable items presented in corporate balance sheets, such as financial assets and facilities (Hong & Wu, 2005). Scholars underline the most independent and steady facet of intellectual capital is structural capital because it does not rely on individual mobility (Brooking, 1996; Edvinsson & Malone, 1997; Edvinsson & Sullivan, 1996). Edvinsson (1997) emphasizes knowledge and skills from human resources can be utilized by an organization after converting through structural capital. Stewart (1997) also indicates structural capital is corporate organizational structure, institutional norms, organizational culture, etc. In short, it is the sum of organizational systems and procedures, or for Edvinsson and Malone (1997), it is the organizational capability applied for transmitting and storing intellectual material. Chen et al. (2004) also mentioned that structural capital works with the system, mechanisms, and corporate structure that can sustain employees in their pursuit of optimal intellectual performance, and hence to accomplish the organizational performance. What is more,

structural capital enables the intellectual capital of an organization to be measured and developed because its essence is to embed the knowledge into organizational routines, or intellectual capital is just human capital (Bontis, 1998). To sum up, there are roles of structural capital. First of all, it is the foundation of applying human capital effectively and adequately. Next, it is an organizational structure in which employees can have better performance. Lastly, it is the capability of an organization to fulfill market demands. Structural capital is emphasized as living independently of human capital; moreover, human capital and structural capital work in a coordinating position for allowing enterprises to arrange, develop and utilize other capitals in intellectual capital (Chen et al., 2004). Customer capital is termed “relational capital” as well because it is relevant to the external relationships of an organization with its related stakeholders (Marr et al., 2003). Customer capital is the inserted value in marketing relationships and channels while enterprises develop their business, so it is considered as an essential facet of intellectual capital (Chen et al., 2004). For instance, when customers are satisfied with a product, it could not only maintain the business relationship between enterprises and customers, but also improve the reputation of enterprises, and decrease the elasticity of product price thereupon. Therefore, Stewart (1997) states customer capital is business assets including marketing channels, loyalty of customers, reputation of enterprises, etc. Moreover, Bontis (1998) emphasizes that the major concern of customer capital is marketing-related and customer relationship knowledge; thus it can be seen that at its core is the knowledge that is rooted in the external relationships of enterprises. Market orientation is one manifestation of customer capital affected by customers of the enterprise. It is a corporate culture that reflects a tendency of an organization to continuously provide excellent value to customers (Slater & Narver, 1994).

Overall, the last primary dimension of three-category intellectual capital is customer capital that has inherent worth in organizational relationships with its important stakeholders such as vendors and customers. It is an external intangible resource of enterprises such as capacities, procedures, knowledge, and systems that are gathered from relations with external stakeholders. In addition, researchers mention that it is an essential marketing strategy for enterprises to maintain market

competitive advantage through enabling customers to fully understand and trust in the enterprise (Zhao et al., 2009).

From the above discussion, three components of intellectual capital are mutually reinforcing, interacting with each other, and jointly promoting the appreciation of the intellectual capital of enterprises.

2.5 Moderating Variable

2.5.1 Social Capital

Social capital is firstly and officially brought up in Bourdieu's work in 1986. Scholars mention that Bourdieu (1986) stated that social capital is the aggregation of the actual or potential resources which are associated with the possession of a long-term network of mutual acquainted or recognized institutional relations (Huang, 2007; Lin, 1999; Portes, 1998; Van Dijk et al., 2016). Huang (2007) mentions that Bourdieu (1986) puts social capital under the sociology framework; moreover, the capital is grouped into economic, cultural, and social capital as maintained by its forms. Since then, not only were various definitions proposed by scholars through their different perspectives, but also many effects from social capital were found. For instance, Putnam (1993) states that social capital is able to increase returns on physical and human capital investment; furthermore, it is a main element in world economy development since it creates trustfulness, decreases transaction costs, and facilitates the flow of information and innovation. Lane and Lubatkin (1998) mention that social capital in a relationship allows the enterprise to dig into the shared knowledge resources from its partner, to enhance the breadth, depth, and efficiency of mutually shared knowledge as well. Adler and Kwon (2002) define social capital as an assemblage of social resources that can be extracted from the relationships among a workplace. Lin (1999) concludes four elements to explain why social capital works. Firstly, social capital promotes the mobility of information; besides, that information could lower the transaction cost for enterprises. Secondly, these social relationships may influence an intermediary who features in decisions including the actor. Next, social relationship resources and the acknowledged relationships of individuals can be

regarded as the individuals' social credentials. Lastly, social relationships are anticipated to promote identification and acknowledgment.

The literature mentions that social capital is a multiple-dimensional concept and is constituted by three highly interrelated components. As claimed by Nahapiet and Ghoshal (1998), for better measurement, social capital is divided into three dimensions involving structural, relational, and cognitive dimension; besides, they describe the linkage among people and quality of networks and bring a greater awareness to the effect of social capital in an organization. The structural dimension draws on the structural embeddedness of Granovetter (1992), which explains the impersonal configuration of association between people or units. This dimension pertains not only to the structural characteristics of a network, but also to relationship patterns among individuals in an organization (Fandiño, Marques, Menezes, & Bentes, 2015; Sahin, 2010). Scholars conclude that this dimension is to look into the density, connectivity, hierarchy of network configuration, and to figure out who is linked with whom and how (Adler & Kwon, 2002; Nahapiet & Ghoshal, 1998). Nahapiet and Ghoshal (1998), therefore, state that network ties, network configuration, and appropriable organization are particular elements of the structural dimension. Information is vital in action processing but costly to gather, but the network ties offer pathways for transmitting information. Then, social capital owns a worthwhile source of information profits since it lessens the time and investment to acquire information (Coleman, 1988). From previous discussion, density, connectivity, and hierarchy are three properties of network configuration which affect flexibility and ease of information exchanging in the members' network (Nahapiet & Ghoshal, 1998). Appropriable organization, the last facet of structural dimension, is the entity of networks which are designed for one aim that may be applied for another (Putnam, 1995). Thus, this dimension is important because it can not only improve the accesses between organizational members, but also exchange useful information with purpose. The relational dimension refers to a network's quality, which describes the developed personal relations between individuals in an organization through historical interactions (Granovetter, 1992; Nahapiet & Ghoshal, 1998). The relational dimension focuses on the special relationship people possessed, and those assets that are rooted, designed, and utilized through relationships (Tsai & Ghoshal, 1998). For better

analysis, scholars find out some facets are in accordance with the formation of social capital. Trust is mostly mentioned in literature by scholars (Chiu, Hsu, & Wang, 2006; Nahapiet & Ghoshal, 1998; Putnam, 2000; Woolcock, 1998), since it is centered in cooperative relations. Trust is the willingness of one person or group to connect with another and believing that another person's action will be beneficial rather than harmful, even though it cannot be secured (Child, 2001); thus, trust is a basis antecedent of actions. Putnam (2000) and Coleman (1990) point out reciprocity is a vital attribute of social capital, which is closely associated with the concept of trust. The existence of norms of reciprocity in relations can promote mutual exchanges and offer beneficial resources at the same time (Putnam, 2000). Identification is another aspect of the relational dimension. It is the procedure by which individuals view themselves as being with other persons or groups, so it can enhance perceived chances for exchanges and cooperation with each other (Nahapiet & Ghoshal, 1998). Based on the above three core constructs, the relational dimension plays an essential role in social capital to facilitate exchanges between individuals in an organization. The cognitive and relational dimensions both describe the quality of the network, but cognitive is regarded as the highest level of the three dimensions (Wu & Shi, 2009). The cognitive dimension is shared resources that provide joint codes and narratives, such as shared understanding, interpretation, representations, and systems among parties (Chiu et al., 2006; Sahin, 2010; Van Dijk et al., 2016). These resources incorporate a joint vision and a shared language (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998). A shared vision manifests the purposes and expectations of an organization's members; in addition, it promotes organization members becoming partners for resource exchange (Tsai & Ghoshal, 1998). The other aspect, shared language resource, is not only more than the language itself, but also the outcomes of day-to-day coactions (Lesser & Storck, 2001). Nahapiet and Ghoshal (1998) indicate a shared language means the reduplication of knowledge within rational partners. Therefore, it is able to promote a general acknowledgement of information exchanging (Van Dijk et al., 2016). In general, as a critical facet of social capital, the cognitive dimension builds effective communication as well as promotes information sharing between individuals in an organization, so that fosters capabilities

of innovation, responding to the environment's demands, and so on (Bolino, Turnley, & Bloodgood, 2002; Fandiño et al., 2015; Tsai & Ghoshal, 1998).

2.6 Hypothesis Development

2.6.1 Intellectual Capital and Innovative Behavior

Innovation is a meaningful factor for organizations to achieve sustained competitive advantages under an intensely competitive business environment (Damanpour et al., 2009). More specifically, Anderson et al., 2014 found that innovation plays a vital role in competition at the individual, group, organizational, and national levels. The literature shows that most studies focus on linking knowledge to innovation outcomes only (Subramaniam & Youndt, 2005), but personnel are originators of innovation (Chen et al., 2010). Cingöz and Akdoğan (2011) mention that developing, adopting, and implementing innovations in organizations extensively relies on employees' innovative behavior in the workplace. In fact, innovation outcomes do not exist in every organization, thus, it is important for managers to explore and develop innovative behavior in the organization. Innovative behavior denotes entire individual behaviors that generate, introduce, and apply valuable newness at any level in an organization with the purpose of benefiting the job's effectiveness, the group, or the organization (Janssen et al., 2004; Kleysen & Street, 2001). To have a better understanding of innovative behavior, scholars conclude five components of innovative behavior including championing, investigation, generativity, opportunity exploration, formative, and application (Kleysen & Street, 2001). Thus, innovative behavior is a dynamic and multi-stage procedure that starts with idea generation and problem recognition (Janssen et al., 2004; Scott & Bruce, 1994). Some studies have recognized knowledge sharing and knowledge management are important in encouraging and developing innovative capabilities, innovative behavior, innovation, and organizational effectiveness (Kim et al., 2013). Intellectual capital is the sum of knowledge and recognizing the ability of organizations utilized for sustaining competitive advantages (Nahapiet & Ghoshal, 1998; Subramaniam & Youndt, 2005). An organization with capable intellectual capital will build favorable qualifications in which to manage resources, share ideas, and boost the individual

innovative work behavior at their organizations. From the knowledge-based view of a firm, the base of innovativeness relies on corporate intangible assets; besides, it is directly relevant to the capability of a firm to manage its intellectual capital (Santos-Rodrigues & Figueroa, 2007). That is because the dynamic and continuous transformation and reorganization of various forms of enterprise knowledge produces new knowledge (Tovstiga & Tulugurova, 2007). Bontis (1998) further classifies intellectual capital as a mixture of the following dimensions. Human capital involves all competences and capabilities of individuals working in an organization (Lynn, 2000); structural capital contains the whole internal structure of organizations, such as organizational process, routines (Bontis et al., 2000); and customer capital relates to external intangibles of the organization like knowledge rooted in related industry associations or customers (Bontis, 1998). These attributes of intellectual capital are similar with some important determinants of individual innovative behavior and innovation or creativity at all levels, which involves resource, structure and strategy, organizational structure, external environment, etc. (Anderson et al., 2014; Jafri, 2010; King et al., 2007; Woodman et al., 1993). Additionally, empirical researches have directly investigated on the interrelationship of intellectual capital along with innovative behavior. For example, a study by Subramaniam and Youndt (2005) found there is strong support for the premise that intellectual capital influences the innovativeness of both incremental and radical types. Mura et al. (2012) conducted research on innovative work behavior with intellectual capital, and the outcomes of the study partially support that intellectual capital has a direct effect on employees' innovative work behavior. Thus, the following hypothesis is proposed:

Hypothesis 1: The intellectual capital of a firm will positively impact the innovative behavior of an organization.

2.6.2 Intellectual Capital and Absorptive Capacity

Intellectual capital, an increasingly important resource in organizations nowadays, is intellectual intangibles including information, knowledge, experiences, and intellectual property; in the meanwhile, it also the most valuable asset of an enterprise or organization since it enables creating wealth for them (Stewart, 1997, 1998). Intellectual capital is counted as corporate resources, but resources do not

create value (Penrose & Pitelis, 1959). By creating value for an organization, intellectual capital should be effectively utilized. Gold et al. (2001) mention that to contend effectively in the selected markets, firms must utilize their existing knowledge along with producing new knowledge; therefore, more and more organizations add investment in knowledge management since it can improve efficiency as well as effectiveness by comparing to their competitors (Marr et al., 2003). In order to accomplish effective competing, Gold et al. (2001) also posit that an organization must develop its absorptive capacity. Absorptive capacity is a corporate ability to notice, assimilate, and apply new external resources to commercial ends (Cohen & Levinthal, 1990). In other words, absorptive capacity or other activities are needed to create value from intellectual capital. For instance, Liao, Fei, and Chen (2007) investigated that absorptive capacity plays a mediating role between knowledge sharing and capacity in innovation. From the perspective of absorptive capacity, Mariano and Walter (2015) reviewed 186 articles that cite Cohen and Levinthal (1990) seminal work from eight knowledge management and intellectual capital journals, and point out that prior knowledge and knowledge source constitute the antecedents of absorptive capacity. According to absorptive capacity theory, knowledge source significantly affects the enterprise's absorptive capacity (Cohen & Levinthal, 1990; Zahra & George, 2002). Thus, it is easily seen as a crucial relation among the intellectual capital and absorptive capacity of an organization. This composition is also in line with many researcher' works such as Cassol, Gonçalo, and Ruas (2016) and Yan, Chen, and Shen (2002), both works found that absorptive capacity is an important mediator among intellectual capital and organizational innovation. Gupta et al. (2000) research also concludes core intellectual capital is at the root of high-value synergies. In sum, intellectual capital incorporates human and structure together with relational capitals; besides, it is a collection of cognitive structures and processes of organizations to improve their performance (Subramaniam & Youndt, 2005). In addition, it has always been identified as a substantial antecedent of absorptive capacity (Aribi & Dupouët, 2015). Accordingly, the below hypothesis is presented:

Hypothesis 2: The intellectual capital of a firm will positively associate with the absorptive capacity of a firm.

Table 2.4 Previous Studies on Intellectual Capital

Author	Operationalization of Intellectual capital	Sources of IC Data and Measurement	Elements of Intellectual Capital	Data Gathering	Main Findings
Bontis (1998)	Intellectual capital → Performance	Primary data collected from 64 students whom acted as proxy for their organization.	- Structural Capital - Human Capital - Customer Capital	-Questionnaire -Partial least squares	- Structural capital and customer capital of intellectual capital significantly related to performance
Santos-Rodrigues and Figueroa (2007)	Intellectual capital → Innovativeness	Reviewing literature in previous researches. - Proposition	- Human Capital - Structural Capital - Relational Capital	- Documentary research	- A theoretical connection between the innovativeness of an organization and intellectual capital.
Maditinos et al. (2010)	Intellectual capital → Business Performance	Primary data collected from 119 firms of the Athens Stock Exchange	- Structural Capital - Human Capital - Customer Capital - Innovation Capital	- Questionnaire - Structural Equation Model	- Structural capital has a positive relationship toward business performance in both service and non-service industry types.
	Intellectual capital →Absorptive capacity →Innovation	Primary data collected from 104 employees of a Brazilian corporation.	- Human Capital - Structural Capital - Relational Capital	- Questionnaire - Structural Equation Model	- The relationship between intellectual capital and innovation is better explained when absorptive capacity as the mediator.

Author	Operationalization of Intellectual capital	Sources of IC Data and Measurement	Elements of Intellectual Capital	Data Gathering	Main Findings
Yan et al. (2002)	Intellectual capital →Absorptive capacity →Organizational Innovation	Primary data collected from 110 MBA students from a university in China.	- Organizational Capital - Human Capital - External Social Capital	- Questionnaire - Regression Analysis	- Absorptive capacity acts as a vital mediator among intellectual capital and innovation.
Sharabati, Jawad, and Bontis (2010)	Intellectual capital→ Business performance	Primary data collected from 132 top and middle level managers from Jordanian. Secondary data collected from annual reports, books, and trade magazines for financial information.	- Structural Capital - Human Capital - Customer Capital	- Questionnaire - Structural Equation Model	- Intellectual capital variables and sub-variables have a substantive and significant relationship with business performance.
Liao et al. (2007)	Knowledge sharing→ Absorptive capacity→ Innovation Capability	Primary data collected from 355 employees in Taiwanese firms.	- Knowledge donating - Knowledge collecting	- Questionnaire - Structural Equation Model	- Absorptive capacity is the intervening factor between knowledge sharing and innovation capability.
Kim et al. (2013)	Goal orientation→ Knowledge sharing behavior→Employee service Innovative Behavior	Primary data collected from 418 employees in five-star hotels in Korea.	- Knowledge donating - Knowledge collecting	- Questionnaire - Path Analysis	- There is a strong relationship between knowledge sharing and innovative behavior.

Author	Operationalization of Intellectual capital	Sources of IC Data and Measurement	Elements of Intellectual Capital	Data Gathering	Main Findings
Mura et al. (2012)	Intellectual capital→ Innovative behavior Intellectual capital→ Knowledge sharing behavior→Innovative Behavior	Primary data collected from 135 employees in three healthcare organizations.	- Human Capital - Social Capital - Organizational Capital	- Questionnaire - Structural equation model	- The results partially support a direct effect of IC on practitioners' innovative work behavior.
Subramaniam and Youndt (2005)	Intellectual capital→ Innovative capability	Primary data collected from 93 highest-ranking executive in the U.S Director of Corporate Affiliations in two different time periods.	- Human Capital - Social Capital - Organizational Capital	- Questionnaire - Moderated regression analysis	- There is a strong support for the premise that intellectual capital influence on incremental and radical innovative capabilities.
Soo, Tian, Teo, and Cordery (2017)	Intellectual capital →Absorptive capacity →Innovation Performance	Primary data collected from 116 middle- and senior-level managers in Australia firms.	- Human Capital - Social Capital - Organizational Capital	- Questionnaire - Interview - Structural equation model	- The various intellectual capital-enhancing HR practices affect innovation performance through their impact on firm's absorptive capacity.

2.6.3 Innovative Behavior, Absorptive Capacity and Organizational Effectiveness

Organizational effectiveness is the most general and important objective of organizations nowadays. It refers to an organization as a social system, given inevitable resources and methods, executes its objectives without the loss of its resources and methods and without placing too much pressure on its members (Georgopoulos & Tannenbaum, 1957). However, organizational effectiveness and organizational performance are applied interchangeably since they are almost equivalent in their definition, measurement, and explanation (Henri, 2004). In fact, organizational effectiveness is a broader concept based on organizational theory that achieves alternative performance objectives, so organizational performance is an aspect under it (Cameron & Whetten, 1983). Lee and Sukoco (2007) declare that the effective arrangement of tangibles and natural resources is not the exclusive dependent for many organizations attaining improved performance, so effectively managing knowledge resources is necessary. Maier and Remus (2002) say that knowledge management support resources aggregate and converge into capabilities. In truth, since the 1990's, Wiig (1997) found that an increasing number of organizations have begun to perform knowledge management for the purpose of increasing an enterprise's organizational effectiveness and competitive advantages. Knowledge management builds a capacity that enhances efficient management together with information and knowledge flow throughout the organization (Mills & Smith, 2011). Gold et al. (2001) clarify corporate capability of knowledge management is determined by different resources, and these resources make up the two knowledge capabilities of knowledge infrastructure and knowledge process, which link to various measures of organizational effectiveness and performance. A common agreement in the literature is that organizational effectiveness is affected by knowledge management in an organization (Gold et al., 2001; Lee & Sukoco, 2007; Liu, Chen, & Tsai, 2005). The model of knowledge management capabilities proposed by Gold et al. (2001) has grown into one of the most extensively applied in knowledge management academic studies; moreover, the result indicates both capabilities have positive relationships with organizational effectiveness. Zaim, Tatoglu, and Zaim (2007) have adapted the model for investing 83 managers from a

Turkish company, and received the same result of organizational effectiveness. A study by Lee and Sukoco (2007) tested the relations between knowledge management capabilities and organizational effectiveness in Taiwanese companies and found that an organization's innovation and organizational effectiveness are positively affected by the capabilities of knowledge management. It thus can be seen that knowledge management is a crucial determinant toward organizational effectiveness. Although the framework of Gold et al. (2001) enables scholars and practitioners to focus on the main dimensions that make up knowledge capabilities, knowledge management is a broad concept. Therefore, Mills and Smith (2011) point out a more detailed evaluation of knowledge management capabilities can provide a more fundamental understanding of the knowledge capability of an organization and organizational performance. As stated by Gold et al. (2001), structural infrastructure, culture, and the technological dimension are three main dimensions of knowledge infrastructure capability in an organization. The organizational structure of knowledge infrastructure refers to the organizational hierarchy, norms, rules, regulations, and trust mechanisms (Herath, 2007; O'dell & Grayson, 1998). It is consistent with a determinant of creativity, structure, and systems in an organization, which includes both formal and informal processes in an organization (Cook, 1998). The cultural dimension rooted in a knowledge management context is an accumulation of faiths, values, symbols, and behaviors that affect an organization's knowledge management (Ho, 2009). It is in consensus with the other determinant of innovative behavior in an organization, organizational culture, which is the deepest level of fundamental code of behavior, assumptions, and faiths distributed through organizational members and demonstrated by actions particularly from top management (Cook, 1998; Morgan, 1997). Anderson et al. (2014) state that innovative behavior at the organizational level relates to networks, knowledge utilization, strategy, structure, resources, culture and climate, management-related factors etc. Moreover, scholars found that innovative behavior is a knowledge process that includes problem recognizing, and creating solutions for the problem (Carmeli et al., 2006). According to that, even if the innovative behavior of an organization does not focus on the technological component, it enables scholars and practitioners to realize and analyze the knowledge resources in a better way to improve their organizational effectiveness in more detail than knowledge

infrastructure capability. Wignaraja (2002) found that firm size is positively relevant to the technology index. The respondents from the study were from different sizes of firms, so it causes the other reason to utilize the component of innovative behavior to be an alternative factor for the capability of knowledge infrastructure.

The other component, knowledge process capability, comprises processes of knowledge acquisition, conversing, applying, and protecting. The knowledge acquisition process pertains to a corporation's ability to gather new knowledge. Knowledge conversion is the process that converts captured knowledge from various sources to organizational knowledge for business purposes; in short, it is the capability to make knowledge useful (Lee & Suh, 2003). Knowledge application is the process toward utilizing knowledge, which means making knowledge more active for an organization in value creation (Mills & Smith, 2011). The last process is knowledge protection which is formulated to preserve corporate knowledge from inappropriate or illegal applications (Gold et al., 2001). The first three processes are in line with the theory of absorptive capacity, which declare that absorptive capacity is a dynamic ability for an organization to gather, absorb, convert and exploit a series of corporate knowledge, routines, and processes (Cohen & Levinthal, 1990; Zahra & George, 2002). As for knowledge protection, it typically incorporates the copyright, license, as well as information technology systems (Lee & Yang, 2000), so these knowledges are actually outcomes from knowledge resources that in some organizations, especially in the service industry, may not exist. Therefore, this process is not able to be well investigated in this study. In other words, absorptive capacity is a more proper component than knowledge process capacity in this study.

Taken altogether, it is expected as follows:

Hypothesis 3: Employees' innovative behavior in the workplace is positively relevant to organizational effectiveness.

Hypothesis 4: The absorptive capacity of a firm positively impacts its organizational effectiveness.

Table 2.5 Previous Studies on Innovative Behaviors

Author	**Operationalization of Innovative Behavior**	**Sources of Innovation Behavior Data and Measurement**	**Elements of Innovation Behavior**	**Data Gathering**	**Main Findings**
Han, Kim, and Srivastava (1998)	Organizational innovation → Organizational performance	Primary data collected from 134 banks.	- Administrative innovativeness - Technical innovativeness	- Questionnaire - Three-stage least squares analysis	- Technical and administrative innovations positively related to organizational performance.
Scott and Bruce (1994)	Leadership, work group, individual attributes → Psychological climate for innovation → Innovative Behavior	Primary data collected from 172 employees and 26 managers in a large, centralized R&D facility of a major U.S. industrial corporation.	- Search out new ideas - Generates creative ideas - Promotes ideas to others - Implement new ideas - Develop plans for implementation - Innovative	- Questionnaire - Interviews - Path Analysis	- Leadership, support for innovation, managerial role expectations, career stage, and systematic problem-solving style is significantly related to individual innovative behavior.

Author	Operationalization of Innovative Behavior	Sources of Innovation Behavior Data and Measurement	Elements of Innovation Behavior	Data Gathering	Main Findings
Li and Zheng (2014)	Main factors from individual and organizational level →innovative behavior	Reviewing literature in previous researches. - Proposition	- Organizational commitment - Psychological capital -Organizational innovation atmosphere - Leadership - Social capital -Work characteristics	- Documentary research	- There are some main factors from individual and organizational level effect on innovative behavior.
Andriopoulos (2001)	Organizational climate, leadership, organizational culture, resource & skills and structure & systems→ organizational creativity	Reviewing literature in previous researches.	- Organizational climate - Organizational culture - Leadership - Resource & skills - Structure and systems	- Documentary research	- There are five key factors that affect organizational creativity.
Rasulzada and Dackert (2009)	Organizational creativity→ Innovation	Primary data collected from 95 employees working in a high-tech field of industry.	- Organizational climate - Team climate - Leadership	- Questionnaire - Structural equation model	- Organizational climate and work resources is significantly related to perceived creativity and

Author	Operationalization of Innovative Behavior	Sources of Innovation Behavior Data and Measurement	Elements of Innovation Behavior	Data Gathering	Main Findings
			- Work resource		innovation.
Hogan and Coote (2014)	Organizational culture→Innovative behavior→Firm performance	Primary data collected from 91 senior managers in law firms, Australia	- Client-focused innovation-related behaviors - Marketing-focused innovation-related behaviors -Technology-focused innovation-related behaviors	- Questionnaire - Interview - Regression analysis	- Organizational culture partially mediate the effects of values that support innovation on measures of firm performance.

Table 2.6 Previous Studies on Absorptive Capacity

Author	Operationalization of Absorptive Capacity	Sources of Absorptive Capacity Data and Measurement	Elements of Absorptive Capacity	Data Gathering	Main Findings
Lichtenthaler (2009)	Absorptive capacity → Innovation Absorptive capacity → Performance	Primary data collected from 175 medium-sized and large industrial firms.	- Exploratory learning - Transformative learning - Exploitative learning	- Questionnaire - Interview - Structural equation model	- Absorptive capacity has a strong effect on performance - Absorptive capacity has a major impact on innovation.
Cohen and Levinthal (1990)	R&D Spending→ Absorptive capacity →Innovation	Secondary data collected from 1719 R&D lab managers in the American manufacturing sector by Levin et al. (1983,1987).	- Identity - Assimilation - Exploitation	- Questionnaire - Ordinary least squares	- Absorptive capacity is a part of a firm to allocate resources for innovative activity.
Zahra and George (2002)	Absorptive capacity →Competitive advantage	Reviewing literature in previous researches. - Proposition	- Acquisition - Assimilation - Transformation - Exploitation	- Theoretical research	- Absorptive capacity composes four dimensions and positively related to organizational competitive advantage

Author	Operationalization of Absorptive Capacity	Sources of Absorptive Capacity Data and Measurement	Elements of Absorptive Capacity	Data Gathering	Main Findings
Lane et al. (2006)	Absorptive capacity →Knowledge outputs→Firm performance Absorptive capacity →Commercial outputs→Firm performance	Reviewing literature in previous researches. - Proposition of a new model	- Exploratory learning - Transformative learning - Exploitative learning	- Documentary research	- A new model of absorptive capacity processes, antecedents, and outcomes.
Liao et al. (2007)	Knowledge Sharing → Absorptive capacity → Innovation Capability→ Competitive advantage	- Primary data collected from 355 firm's employees from 17 companies in Taiwan.	- Prior knowledge - Intensity of effort	- Questionnaire - Structural equation model	- Absorptive capacity is the intervening factor between knowledge sharing and innovation capability.
Cassol et al. (2016)	Intellectual capital →Absorptive capacity→ Innovation	Primary data collected from 104 employees of a Brazilian corporation.	- Acquisition - Assimilation - Transformation - Exploitation	- Questionnaire - Structural Equation Model	- The relationship between intellectual capital and innovation is better explained when absorptive capacity as the mediator.

Author	Operationalization of Absorptive Capacity	Sources of Absorptive Capacity Data and Measurement	Elements of Absorptive Capacity	Data Gathering	Main Findings
Aribi and Dupouët (2015)	Social capital→ Absorptive capacity Organizational capital→ Absorptive capacity	Interviews were taken with 23 persons in three French industrial firms.	- Exploration - Transformation - Exploitation	-Interview - Building a theoretical framework	- The formation of absorption capacity depends not only on the cognitive aspect, but also on the specific environment of the firm.

Table 2.7 Previous Studies on Organizational Effectiveness

Author	Operationalization of Organizational Effectiveness	Sources of Organizational Effectiveness Data and Measurement	Data Gathering	Main Findings
Gold et al. (2001)	Knowledge infrastructure capability →Organizational Effectiveness Knowledge process capability →Organizational Effectiveness	Primary data collected from 323 executives of firms.	- Questionnaire - Structural equation model	- Knowledge Infrastructure and process capabilities are highly and positively related to organizational effectiveness.
Lee and Sukoco (2007)	Knowledge management→ Innovation→Organizational Effectiveness	Primary data collected from 152 managers of companies listed in the Top 1000 Firms in Taiwan.	- Questionnaire - Structural equation model	- Knowledge management capabilities positively affect innovation and organizational effectiveness.
Zaim et al. (2007)	Knowledge management Processes→performance of KM practices Knowledge management infrastructure→performance of Knowledge management practices	Primary data collected from 83 managers from a single case study of a Global System for Mobile Communications operator in Turkey.	- Personal interview - Structural equation model	- Both knowledge infrastructure capability and knowledge process capability have a significant and positive impact on organizational effectiveness.

Author	Operationalization of Organizational Effectiveness	Sources of Organizational Effectiveness Data and Measurement	Data Gathering	Main Findings
Yang and Wan (2004)	Knowledge management practices→Knowledge acquiring, sharing and storing →Organizational effectiveness	Primary data collected from 35 full-time top managers in four international five-star hotels in Taiwan.	- Semi-structured interview	KM practices support knowledge acquiring, sharing and storing, so then benefit overall organizational effectiveness.
Mills and Smith (2011)	Knowledge management resources→Organizational performance	Primary data collected from 189 students enrolled in graduate MBA and MSc program in Jamaica.	- Questionnaire - Structural equation model	Organizational structure and knowledge application are directly related to organizational performance.
Zheng et al. (2010)	Knowledge management effectiveness→Organizational effectiveness	Primary data collected from 384 HR professionals in a mid-western metropolitan area.	- Questionnaire - Structural equation model	- Knowledge management impact on organizational effectiveness.
Chi, Lan, and Dorjgotov (2012)	Knowledge management→ Transformational leadership →Organizational effectiveness	Primary data collected from 524 respondents at 21 research institutes of the Mongolian Academy of Sciences.	- Questionnaire - Regression analysis	- Transformational leadership is a moderator between knowledge management and organizational effectiveness.

2.6.4 The Moderating Effects of Social Capital

Social capital has evolved into an increasingly important and favored concept in not only the broad field of social science, but also organization studies (Adler & Kwon, 2002). Social capital was initially defined by Bourdieu (1986) as the aggregation of the actual or potential resources associated with possessing a more or less institutionalized network of enduring mutual knowledge recognition (Portes, 1998). One perspective of social capital concentrates on external relations, and indicates social capital is an inherent resource in social networks that connects focus participants with other participants, which is a so-called bridging view (Adler & Kwon, 2002). In contrast, some scholars take the view of internal ties, which is a bonding view of social capital (Coleman, 1990; Fukuyama, 1995; Putnam, 1995). The bonding social capital concerns collective actors' internal characteristics and interconnections among individuals or teams of a collectivity. Moreover, this capital provides cohesiveness for the collectivity and thereby enhances the incentive to achieve collective goals (Adler & Kwon, 2002). For instance, Coleman (1990) proposes that social capital individuals' assets from social structural resources consist of social structural elements and exist within relations and structures for providing convenience to internal members. Putnam (1995) interpreted social capital as characteristics of social organizations containing trust, patterns, and networks, which promote action and collaboration with the purpose of mutual benefit. Fukuyama (1995) regards social capital as an informal series of values or rules shared among group members that allows them to work together. Some scholars emphasize both bridging and bonding views; for instance, Nahapiet and Ghoshal (1998) regard social capital as actual and potential resources located in, available through, and gathered from the network of an individual or social unit. Therefore, social capital theory has been used for examining effects on intellectual capital or intangible assets (Nahapiet & Ghoshal, 1998), knowledge management (Fongtanakit, 2013; Xerri & Brunetto, 2011), innovation (Tsai & Ghoshal, 1998; Weiping Wu, 2008), organizational performance (Singh, Garg, & Deshmukh, 2010; Weiping Wu, 2008), etc. Current literature suggests that developing the innovative behavior of employees can bring competitive advantages for the organization (Xerri & Brunetto, 2011). Innovative behavior involves problem recognition, new ideas and solutions for the problem

solving, supporting and using in the organization (Carmeli et al., 2006). In addition, Martins and Terblanche (2003) point out that innovative behavior is supported and developed through social network members in a workplace who are embedded within the shared values, systems, and beliefs of the organization. Thus, information or knowledge flowing and sharing are vital for developing innovative behavior in an organization. In this regard, this study proposes that by possessing a greater degree of social capital, the positive influence of intellectual capital on innovative behavior at the organizational level will increase. This proposition is in line with literature related theory which suggests when interactions within individuals happened in a workplace, it leads to greater sharing of resources and information (Hezlett & Gibson, 2007); moreover, it also suggests that if the organizational processes within the organization promote the development of trust among members in a network of a collectivity or society, it will be conducive to the sharing of ideas and information (Adler & Kwon, 2002). It is also consistent with a conclusion of social capital theory mentioned by Nahapiet and Ghoshal (1998), that members' channels to an extent of resources and information are affected by the quality of network relationships; furthermore, social capital encourages cooperative behavior, enhancing the innovativeness of an organization.

Following the absorptive capacity model proposed by Zahra and George (2002), this study also predicts the absorptive capacity of an organization will be greater in organizations that nourish and raise social capital. From the study of Zahra and George (2002), acquisition, assimilation, transformation, and exploitation are four components of absorptive capacity. Aribi and Dupouët (2015) mention every component is executed by dissimilar actors in various organizational parts, the absorptive capacity thereby requests that knowledge flows across internal and external edges of the organization. Lane et al. (2006) argue that absorptive capacity relies on the corporate capacities to distribute knowledge and internal communication. Social capital involves three dimensions: the structural dimension reveals the impersonal attributes of relational networks; the relational dimension captures the quality of dyadic ties; and the cognitive dimension provides joint messages, language, symbols, etc. throughout network members (Nahapiet & Ghoshal, 1998; Upadhyayula & Kumar, 2004). Thus, based on theoretical studies, many scholars underline that social

capital has important effects on the absorptive procedure to move knowledge from one stage to the other (Lane et al., 2006; Zahra & George, 2002), as it allows the necessary flows of information and knowledge to take place. For instance, trust has significant effects on information and knowledge exchanging (Kallio, Harmaakorpi, & Pihkala, 2010; Upadhyayula & Kumar, 2004). It means individuals or groups can get more information from others when trust exists among them. Social capital thereby becomes crucial in building an atmosphere of trust in networks (Kallio et al., 2010). In addition, to better absorb acquired information and knowledge, social capital is also meaningful in boosting the understanding of those resources due to offering shared code among members of a network (Upadhyayula & Kumar, 2004). A study by Aribi and Dupouët (2015) of organizational and social capital on the absorptive capacity of a firm also found absorptive capacity depends on social capital.

It is therefore understood that organizations can strategically apply their intellectual capital and get results in different performances even in a similar area through their level of social capital in the organization. From the opinions of the above discussion, the below hypotheses are deduced:

Hypothesis 5a: The positive influence of intellectual capital on employees' innovative behavior in the workplace will be increased when organizations possess a greater extent of social capital.

Hypothesis 5b: The positive influence of intellectual capital on the absorptive capacity of a firm will be improved when organizations possess a greater extent of social capital.

Table 2.8 Previous Studies on Social Capital

Author	**Operationalization of Social Capital**	**Sources of Social Capital Data and Measurement**	**Elements of Social Capital**	**Data Gathering**	**Main Findings**
Tsai and Ghoshal (1998)	Social capital→ Resource exchange and combination → Value creation	Primary data collected from 45 members of management team in a multinational electronics company.	- Structural dimension - Relational dimension - Cognitive dimension	- Questionnaire - Structural equation modeling techniques - Path analysis	- There is a strong support that social capital facilitates value creation.
Wu et al. (2008)	Social capital→ Innovation	Primary data collected from 159 in Taiwanese firms.	- Structural dimension - Relational dimension - Cognitive dimension	- Questionnaire - Hierarchical regression model	- Firms operating in an atmosphere of higher social capital enhances their intellectual capital.
Xerri and Brunetto (2011)	Social capital→ Innovative Behavior	Primary data collected from 85 engineering employees within an Australian SME.	- Structural dimension - Relational dimension - Cognitive dimension	- Questionnaire - Interview - Linear regressions	- The greater number of social capital, the greater the output of innovative work behavior.
Upadhyayula and Kumar (2004)	Social capital→ Absorptive capacity	Reviewing literature in previous studies. - Proposition	- Structural dimension - Relational	- Documentary research	- There is a positive relation between social capital and absorptive capacity.

Author	Operationalization of Social Capital	Sources of Social Capital Data and Measurement	Elements of Social Capital	Data Gathering	Main Findings
			dimension - Cognitive dimension		
Yu (2013)	Social capital→ Absorptive capacity →Firm innovation	Secondary data collected from 748 electronics industrial firms that listed in Taiwan Stock Exchange Corporation during period from 2006-2008.	- Social network	- Database - A developed model by the author	- A firm's social network has an inverted U-shaped relationship with the firms' innovation performance.
Mura, Moustaghfir, Lettieri, Radaelli, and Spiller (2013)	Knowledge sharing →social capital→ innovative behavior	Primary data collected from 198 employees at four Italian Hospice and Palliative Care Organizations.	- Relational dimension - Structural dimension	- Questionnaire - Interview - Seemingly unrelated regression	- Individuals' perceptions of social capital have a relevant moderation effect on the linkage between knowledge sharing and innovative behavior.

2.7 Conceptual Model

According to the literature review and hypotheses development in the previous segment, a conceptual model was developed to guide this study (Figure 2.6). It can be seen that innovative behavior in the workplace and the absorptive capacity of a firm are two key determinants influencing organizational effectiveness. Moreover, intellectual capital is a vital resource of an organization, so that defines the level of innovative behavior and absorptive capacity. Lastly, intellectual capital can have various results through the extent of social capital in the organization. All hypotheses of this study are summarized in the below Table 2.9.

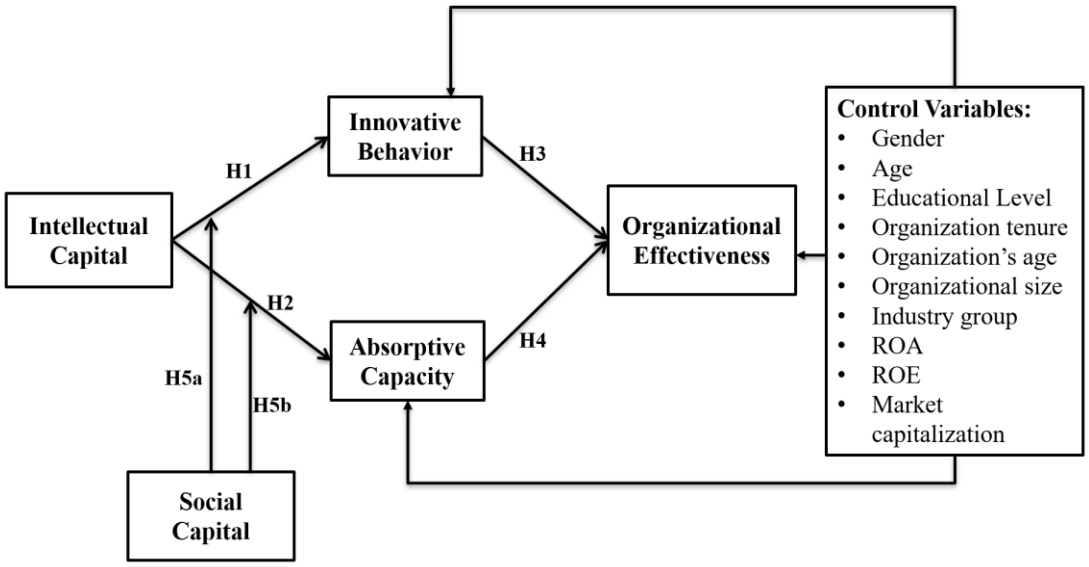


Figure 2.6 The Conceptual Model

Table 2.9 The Summary of Hypotheses

Hypotheses	
Hypothesis 1	The intellectual capital of a firm will positively impact the employees' innovative behavior in the workplace.
Hypothesis 2	The intellectual capital of a firm will positively associate with the absorptive capacity of a firm.
Hypothesis 3	Employee's innovative behavior in the workplace is positively relevant to organizational effectiveness.
Hypothesis 4	The absorptive capacity of a firm positively impacts its organizational effectiveness.
Hypothesis 5a	The positive influence of intellectual capital on employees' innovative behavior in the workplace will be increased when organizations possess a greater extent of social capital.
Hypothesis 5b	The positive influence of intellectual capital on the absorptive capacity of a firm will be improved when organizations possess a greater extent of social capital.

CHAPTER 3

RESEARCH METHODOLOGY

As stated by the literature review in the previous segment, a conceptual framework and a path diagram were developed. This chapter describes the approach to the study. It provides an explanation of the research methodology used to conduct this study.

3.1 Research Design

This study is rooted in the field of organization studies which observes the relations between intellectual capital and knowledge management or is specified as innovative behavior and absorptive capacity, and their effects on organizational effectiveness. Thus, a quantitative method by applying a cross-sectional design on listed companies in the service sectors of Thailand is the best approach applied in this field. The quantitative methods in the strategic management area is a needed toolkit in the management research; moreover, an exploratory quantitative study can build a wider group of evidence to test on the relationship between knowledge management and organizational effectiveness (Echambadi, Campbell, & Agarwal, 2006; Zack, McKeen, & Singh, 2009).

Bryman (1989) has concluded four characteristics of quantitative organizational research that are tailored to the particular needs of researchers of organization. First of all, the essentials of quantitative research processes are close to a ‘scientific’ approach to conducting research, in which is applied a systematic approach to investigations by minimizing ingredients while gathering as well as analyzing data in relation to a previously formulated research problem. Mohr (1982) states that organizational effectiveness is considered an entity that depends on something else, which reflects the tendency of causality within research on organizational effectiveness. The causal effects are often embodied in the

comprehensive utilization of independent and dependent variables in quantitative organizational studies, which is the second characteristic of the quantitative method, the demonstration of causality. In social survey research, researchers highly pursue the findings that can be generalized beyond a specific investigation. Therefore, the third nature of the quantitative method, generalization, can reveal the extent to which the samples of the research represented a larger population. Finally, the quantitative method demonstrates a concern that research should be capable of replication. On one hand, replication can serve as a measure to build up a group of outcomes that can be reduplicated in another field. On the other hand, replication ensures the findings will be verified so that a researcher's biases and predilections can be inspected.

This study is not an investigation on one or a small number of cases since it will cover all listed companies in the service industry on the SET and MAI. As a result, the quantitative method was applied in this study due to its essential features and quality in organizational studies. In addition, it was also in line with most of the previous main studies which applied the quantitative method to examine the discipline of intellectual capital, absorptive capacities of firms, innovative behavior in the workplace, and organizational effectiveness as listed in Table 2.4, 2.5, 2.6, 2.7 and 2.8.

Generally, a cross-sectional design allows researchers to explore the relationship among variables. Moreover, Campbell and Rahman (2010) found that most empirical studies on intellectual capital applied a cross-sectional approach. This study did not respond to longitudinal studies since it was time-consuming. Thus, a cross-sectional approach was applied in this study due to it being the best way to identify associations.

3.2 Sample and Data Collection

Even though there are no significant distinctness among service and manufacturing companies in term of ways to achieve goals, policies, evaluations, and whole plan for corporate offerings (George & Barksdale, 1974), the 'fuzzy' nature of services outputs brings particularly hardness to measure a service firm's improvement or change, such as innovation (Gallouj & Weinstein, 1997 as cited in Prajogo, 2006).

Due to those difficulties, investigations in service firms are still largely underdeveloped even service sectors has become the largest contribution to Thailand's GDP for decades. Therefore, to closely analyze service companies can bring both academic and practical contribution.

Based on the concept of GATS, the scope of services includes business service, communication services, construction and related engineering services, distribution services, educational services, environmental services, financial services, health-related and social services, tourism and travel-related services, recreational, cultural, and sporting services, transport services, and other services not included elsewhere. According to the scope of GATS on the service(s) industry of Thailand, this study covered the industry groups of Services, Property & Constructions, Financials, and Technology on SET. However, there are three sub-sections under Property & Constructions excluded from this study. One is "Construction Materials" since those companies are involved in producing materials used in construction. The next is "Construction Services" which involves constructing residences. The companies under this sector rely on tangible resources and have tangible outcomes to investigate organizational performance, which is converse with this study that emphasizes intangible resources and evaluates organizational effectiveness based on the knowledge management perspective. The last is "Property Fund & Real Estate Investment Trusts (REITs)" since investment does not belong to the service(s) industry in the GATs concept. In addition to above three sectors, sectors under the Technology industry group were excluded as well, which are electronic components, and information and communication technology. These companies not only involved in technological products, but also manufacturing or distributing equipment for this technology. Those products are tangible commodities, which are not consistent with the purpose of this study in focusing on intangible sources or outputs. Therefore, the three industry groups represent a total of 10 sectors on the list of SET and MAI. To be more specific, the population of this study is in total 289 firms, which incorporate 10 sectors from Professional Services (5), Banking (11), Tourism & Leisure (12), Insurance (17), Transportation & Logistics (22), Health Care Services (23), Commerce (26), Media & Publishing (27), Financial & Securities (32), Property Development (56), and others listed in MAI and belonging to the three industry

groups but not categorized in sub-sections (58). The main reason for choosing these companies from the list of SET and MAI is the data from them are highly applied for academic purposes by scholars, especially for innovative business. In addition, the extremely competitive business environment they face in both domestic and international markets, which demands these companies to perform well by being responsive and keeping up to date (Lee & Sukoco, 2007). Thus, those companies can be the representatives of companies in Thailand, and the outcomes of this study enable the framework to be generalized to others.

This study used both primary and secondary data. The primary data was collected by a questionnaire survey for independent variable – intellectual capital, dependent variable – innovative behavior, the absorptive capacity and organizational effectiveness, and control variables at the individual level – respondents' age, gender, educational level, and organization tenure. Those control variables at the individual level were collected since the measurements of social capital were related to the relations among managers and their subordinates. The demographic characteristics of managers are different, which may have distinct effects on their relationships. The respondents were general managers from any departments of each company by questionnaire survey. Bertrand and Schoar (2003) proposed that at least one specific top executive or manager can be observed and act as the practical respondent for each firm. However, the number of respondents was collected as much as possible due to Marshall (1996) having mentioned that the larger the sample size, the smaller the probability of sampling error. Managers were asked to fill up some information related to organizational characteristics which were considered as control variable at the organizational level. The first was organization's age which counted at the end of 2019. Second, organizational size was measured by the number of current full-time employees in the firm. Last, sub-sections of industry group were also asked managers to select, and double checked at both corporate official website and records on SET or MAI. For the secondary data, the statics in end of 2019 of return on assets (ROA), return on equity (ROE) and market capitalization were collected on SET and MAI. Besides, what sectors the companies belong to were also collected on SET and MAI, as well as double checked in each company's official websites. The reason to collect control variables at the organizational level was a necessary in this study due to it

focused on organizational level; besides, the measurement on independent and dependent variables were based on an organizational perspective.

To choose respondents from the managerial level is in accordance with previous research on intellectual capital, knowledge management, as well as organizational effectiveness (Cohen & Levinthal, 1990; Hogan & Coote, 2014; Lee & Sukoco, 2007; Scott & Bruce, 1994; Sharabati et al., 2010; Subramaniam & Youndt, 2005; Yang & Wan, 2004; Zaim et al., 2007; Zheng et al., 2010), because managers are expected to have a holistic view for an organization and the ability to respond to a dynamic environment. Therefore, the sample size consisted of individual managers representing 289 firms in 10 sectors under three industry groups of the services industry in Thailand.

3.3 Pilot Study

The main objective of this study is to explore the effect of intellectual capital on knowledge management, and in turn on organizational effectiveness, so the structured and self-administered questionnaire survey tool was applied to gather data from respondents and measure all independent and dependent variables. Since the population is in Thailand and the original language of adapted questionnaires were English, the back-translation method was applied in this study. The questionnaire was translated into Thai by a translator and then into English by an independent translator who has no knowledge of the original questionnaire, then the two versions were compared. Finally, the questionnaire was expressed in both English and Thai language one-time. For the sake of the survey's validity and reliability, the questionnaire was pre-tested through a pilot study. The first draft of the questionnaire was pre-tested in a small group of managers from other industries before the real data collection began. Ten managers from listed companies which are not belonged to the service industry participated and filled up the questionnaire survey and send it back through email. The reliability of each variables and their specific dimensions were tested through Cronbach Alphas (α) coefficient. The results found the Cronbach Alphas (α) coefficient of acquisition, first dimension of the absorptive capacity, was only 0.382. After repeated comparison with three items under the variable of

acquisition, the results showed that the question related to the acquisition of absorptive capacity, “the organization management is oriented to see what happens, instead of concern for and orientation towards their environment to monitor trends in a continuous and wide-ranging manner and to discover new opportunities”, was not fit to this variable in this study. Then, this item was removed and the Cronbach α coefficient raised to 0.881. Moreover, the Cronbach α coefficient of the absorptive capacity was raised to 0.943 from 0.916 as well. The cause might be the questionnaire was originally applied in the western culture, and there are culture differences between western countries and Thailand. As illustrated in Table 3.1, the results are reliable due to Cronbach α coefficient of every variables and their dimension were higher than 0.7 as previous studies suggested (Fornell & Larcker, 1981). Besides, the highest value was 0.965 from the variable of innovative behavior, which involves nine items in the questionnaire survey. It indicates that employees’ innovative behavior is multistage procedure with essential and various activities and individual behavior at every stage, which is consistent with previous papers (Janssen et al., 2004; Scott & Bruce, 1994).

Table 3.1 Reliability Statistics of Pilot Study

	Variables	**Dimensions**		
	Innovative Behavior	Idea Generation	Idea Promotion	Idea Realization
Cronbach alphas (α) coefficient	0.965	0.932	0.925	0.914
	Intellectual Capital	Human Capital	Structural Capital	Customer Capital
Cronbach alphas (α) coefficient	0.956	0.908	0.916	0.913
	Social Capital	Structural Dimension	Relational Dimension	Cognitive Dimension
Cronbach alphas (α) coefficient	0.940	0.778	0.920	0.844

Variables	Dimensions				
	Absorptive Capacity	Acquisition	Assimilation	Transformation	Exploitation
Cronbach alphas (α) coefficient	0.943	0.881	0.924	0.836	0.768
	Organizational Effectiveness				
Cronbach alphas (α) coefficient	0.947				

After the revision on the basis of the results from the pilot study was made, the final version of the questionnaire was distributed to the samples in the following weeks. There were several channels used to dish out the questionnaires, such as printed questionnaires via post with return envelopes, a formal letter to human resource departments for distributing the questionnaire, an online questionnaire, and onsite collection. After the collection had been done, the response rate was calculated at the organizational level in order to identify the sample error. The response rate at the individual level was not able to be calculated since the person to distribute the questionnaire were the HR managers from each listed firm, and the specific number of distributed questionnaires is unknown. Moreover, the secondary data was collected from recorded statistics on SET and MAI for three control variables. Five-point Likert-type scales anchored from "1= strongly disagree" to "5 = strongly agree", or "1=never" to "5=always" are used as response formats. The questionnaire will be dished out by structured mailing. The respondents should be at the managerial level in an organization, such as managers, supervisors, and executives. They are decision-makers of the organizations, so they need to know the whole organization.

3.4 Measures

3.4.1 Dependent Variables

3.4.1.1 Organizational Effectiveness

This purpose of this study is exploring the relations between organizational effectiveness and two variables from knowledge management which

are its determinants. From the perspective of scholars in strategic management, organizational effectiveness is more complex than aggregated measures of financial ratios (Hart & Banbury, 1994; Venkatraman, 1990). In addition, organizational effectiveness refers to an organization as a social system, given inevitable resources and methods, executes its objectives without the loss of its resources and methods, and without placing too much pressure on its members (Georgopoulos & Tannenbaum, 1957). Therefore, this study focuses on the non-financial part of organizational effectiveness. It is in line with a study of Gold et al. (2001), which used a non-financial measurement and discovered knowledge infrastructure and knowledge processing have strong and significant relationships with organizational effectiveness; besides, the study. Some scholars extended the notion of organizational effectiveness to involve financial measures; however, the studies found the strength of the relationship has been reduced (Mohrman, Finegold, & Mohrman Jr, 2003; Tanriverdi, 2005). For example, Zack et al. (2009) found knowledge management practices were directly relevant to organizational performance, but indirectly related to financial performance. On the impact of knowledge management, changes in organizational practices, especially knowledge management, are unnecessary in leading to changes in financial performance because of the distinct constructs between financial and non-financial consequences (Kalling, 2003; Simonin, 1997). Conversely, knowledge management has an effect on a range of intermediary competencies, which in turn results in financial performance (Heeseok Lee & Choi, 2003). This may explain the weak relationship explored in the above study between using exclusive financial performance indicators or a combination of financial and non-financial performance indicators. Thus, this study has applied the framework of Gold et al. (2001) which focuses on only non-financial outcomes. The other rationale of not applying financial performance indicators is the respondents of this study are not only from financial departments, but other departments such as human resources, R&D, marketing, etc., so some managers do not have information on financial performance. In addition, Eydi (2013) proposed a 65-item questionnaire to measure organizational effectiveness for the sporting federation based on the competing value approach by comparing differences in the values underlying organizational effectiveness models. Dang, Le-Hoai, and Kim (2018) categories two themes for organizational effectiveness

outcomes which are working-related effectiveness and management-related effectiveness to investigate construction companies. Omoregie and Popoola (2018) presented a 16-item questionnaire to measure organizational effectiveness in the banking industry in Nigeria. As a consequence, this study adapted measurements from the above studies for organizational effectiveness which are illustrated in Table 3.2. In order to avoid bias caused by subjective evaluating, there must be at least two managers responding to the questionnaire from an organization.

Table 3.2 Item Measures of Organizational Effectiveness

Measures
Over the past two years, the organization has improved its ability to …
OE1: Anticipate potential market opportunities for new products/services.
OE2: Reduce redundancy of information and knowledge.
OE3: Be receptive to suggestions for change.
OE4: Streamline its internal processes.
OE5: Be responsive to market changes.
OE6: Communicate well with other service-oriented organizations.
OE7: Be successful at gaining feedback information from constituent groups.
OE8: Have good retention numbers of employees.
OE9: Maintain consistency in direction and decision making.
OE10: Encourage and support further training for employees.

3.5.1.2 Innovative Behaviors in the Workplace

Innovation is a vital factor in organizations attaining sustained competitive advantages (Damanpour et al., 2009). Nourishing, adopting, and executing innovation in an organization extensively relies on employees' innovative work behavior (Cingöz & Akdoğan, 2011). Since innovative behavior is a multi-dimensional procedure, Janssen (2000) states that an individual level of innovative behavior in the workplace includes three dissimilar behavioral events which are generating, promoting, and realizing ideas. Based on this view, innovative behavior in this study consists of 9 items, which are adopted from a study of Janssen (2001). The measurement of Janssen's (2001) study was adapted from Scott and Bruce's (1994)

scale of innovative behavior in the workplace, which derives from Kanter's (1988) work on the section of innovation. Each dimension has three items which are illustrated in Table 3.3 and the format of responses are ranked from "never" to "always".

Table 3.3 Dimensions and Measures for Innovative Behavior in the Workplace

Dimensions	**Measures**
	My subordinates are …
Idea Generation	IB-IG 1: Creating new ideas for improvement.
	IB-IG 2: Searching out new working methods, techniques, or instruments.
	IB-IG 3: Generating original solutions to problems.
Idea Promotion	IB-IP 1: Mobilizing support for innovative ideas.
	IB-IP 2: Acquiring approval for innovative ideas.
	IB-IP 3: Making important organizational members enthusiastic for innovative ideas.
Idea Realization	IB-IR 1: Transforming innovative ideas into useful application.
	IB-IR 2: Introducing innovative ideas into the work environment in a systemic way.
	IB-IR 3: Evaluating the utility of innovative ideas.

3.4.1.3 Absorptive Capacity of a Firm

From the literature review part, scholars mainly utilize three categories of measurement index. First is using proxy variables which concern R&D personnel, productivity, number of patents, R&D intensity etc. factors (Becker & Peters, 2000; Tsai, 2001; Veugelers, 1997). Second is a general scale by considering activities that are not belonging to R&D as a holistic factor (Lane et al., 2006). The last is based on the perspective of the process view to consider the absorptive capacity in multiple dimensions (Cohen & Levinthal, 1990; Zahra & George, 2002). This study is according to Zahra and George's (2002) model, in which absorptive capacity is a dynamic process including potential and realized parts, which are knowledge acquisition, assimilation, transformation, and exploitation. To be measured, therefore,

this study adapts the questionnaire constructed by Cassol et al. (2016), which covers four capacities of absorptive capacity, as shown in Table 3.4.

Table 3.4 Dimensions and Measures for Absorptive Capacity

Dimensions	**Measures**
Acquisition	AC1: The organization has the capacity to capture relevant, continuous, up-to-date information and knowledge on current and potential competitors.
	AC2: The organization gives importance to and frequently engages in cooperation with R&D organizations, universities, business schools, technological institutes, etc., as a member or sponsor to create knowledge and innovations.
Assimilation	AS1: The organization has the capacity to assimilate new technologies and innovations that are useful or have proven potential.
	AS2: The organization has the ability to use employees' knowledge, experience and competencies in the assimilation and interpretation of new knowledge.
	AS3: The organization has the ability to develop knowledge management programs, guaranteeing the firm's capacity for understanding and carefully analyzing knowledge and technology from other organizations.
Transformation	T1R: The organization creates barriers that impede all employees from voluntarily passing on useful scientific and technological information they have acquired to others.
	T2: The organization has the capacity to adapt technologies created by others to the organization's specific requirements.
	T3: The organization has the capacity to use information technology to improve the flow of information, achieve effective sharing of knowledge and foster communication between members of the organization.

Dimensions	Measures
Exploitation	E1: The organization has the capacity to exploit new knowledge at work and rapidly respond to changes in its environment. E2: The organization achieves a high degree of application of the knowledge and experience acquired in the business fields.

Note: R= reverse coded item

3.4.2 Independent Variable

3.4.2.1 Intellectual Capital

There are three dimensions extracted in terms of intellectual capital, the key independent variable in this study, which is in line with Bontis (1998). According to the theoretical framework and the previous studies, three-dimensional intellectual capital consists of human capital, which is related to the result of human intelligence which includes people's values, knowledge, skills, and abilities in the organization; structural capital, that is the sum of systems and organizational procedures; and customer capital, which is the outcome of ambitious and social intelligence based on shared relationships and the value of actions in the environment (Santos-Rodrigues & Figueroa, 2007).

For measuring intellectual capital, a questionnaire presented by Cassol et al. (2016) was adapted, as illustrated in Table 3.5. 14 items were selected, and these items cover the three dimensions of intellectual capital as well.

Table 3.5 Dimensions and Measures for Intellectual Capital

Dimensions	Measures
Human Capital	HC1: Employees participate in company decisions. HC2: The majority of employees have worked for the company for many years. HC3: The employees have a high level of education/qualification. HC4: The company makes long-term investment in its employees. HC5R: If a key employee leaves the company there will be losses.
Structural	SC1: The company implements new ideas.

Dimensions	Measures
Capital	SC2: The transaction time in company is decreasing.
	SC3: The company supports development of ideas.
	SC4: The systems of company allow information accessing easily.
	SC5: The atmosphere is supportive here.
Customer Capital	CC1: Customers are completely satisfied with the company.
	CC2: The company's brand is well-known in the market.
	CC3: Partnerships with suppliers and customers are strong.
	CC4R: The company do not care what customer wants.

Note: R= reverse coded item

3.4.3 Moderating Variables

3.4.3.1 Social Capital

Organizational social capital can cause different results of using the intellectual capital of a firm. The conception of Nahapiet and Ghoshal (1998) is mainly applied by most researchers to measure the social capital of an organization, which categorizes social capital as structural, relational, and cognitive dimensions. Thus, building on perspectives of Nahapiet and Ghoshal (1998) and Tsai and Ghoshal (1998), multiple constructs were applied to measure social capital; in addition, the measure from studies by Sahin (2010) and Chiu et al. (2006) are adapted for the structural dimension, and other studies by Van Dijk et al. (2016) and Sahin (2010) are selected for the cognitive and relational dimensions. According to the literature review part, trust, identification, and norms of reciprocity are three constructs that address the relational component. Shared vision and shared language are two constructs approaching cognitive component. Social interaction ties represent the structural component of social capital. In sum, Table 3.6 below illustrates the measures of social capital.

Table 3.6 Dimensions and Measures for Social Capital

Dimensions	**Measures**
	In this organization…
Structural dimension	SD1: We maintain close social relationships with some members.
	SD2: We have frequent communication with some members.
	SD3: We know some members on a personal level.
Relational dimension	*Trust*
	RD1: We expect the complete truth from each other.
	RD2: We all fully trust one another.
	RD3: We count on each other to fully live up to our word.
	Identification
	RD4: We feel a sense of togetherness or closeness with members.
	RD5: We have strong positive feeling towards members.
	Norms of Reciprocity
	RD6: We believe that members would help us if we needed it.
	RD7: We believe that members would share an open perspective towards new knowledge or information.
Cognitive dimension	*Shared language*
	CD1: We use common terminology when sharing information.
	CD2R: Misunderstandings frequently occur when we communicate with members.
	Shared vision
	CD3: We share the same vision for what the organization should accomplish.
	CD4: We share the belief that helping others is pleasant.

Note: R= reverse coded item

3.4.4 Control Variables

Besides the main independent variables, this study will control key elements that may influence innovative behavior, absorptive capacity, and organizational effectiveness. Both characteristics of individual and organizational-level are encompassed in the conceptual model. Previous studies have shown innovative behavior, absorptive capacity, and organizational effectiveness to be significantly related to a number of demographic and position variables (Janssen, 2000; Mura et al., 2012; Sahin, 2010; Scott & Bruce, 1994; Soo et al., 2017). Thus, it is meaningful to include managers' personal attributes, for example, gender, age, educational level, and organization tenure, since the assessment is based on managers' perceptions. For the organizational-level control variable, organizational size, organization's age, and sub-section of the service industry are also utilized for controlling the attributes at the organizational level. The main reason is a previous study indicated that elder organizations may have greater organizational structures and systems to promote the efficient acquisition and use of knowledge (Chang, Gong, Way, & Jia, 2013).

The control variables will be separately measured at the individual level and organization level. Firstly, the control variables of the individual level are as follows. Gender is measured as a dummy variable (females=0; males=1). Age is measured in years. Level of education is measured by applying an ordinal scale (1=less than a bachelor's degree; 2=bachelor's degree; 3=master's degree; 4=doctoral degree). Organization tenure is measured by the number of years managers have taken actions in their respective departments (1=less than 2 years; 2=2-4years; 3= 5-8 years; 4=more than 8 years).

At the organization level, organizational size is measured by the number of full-time employees in the organization (1=less than 50; 2=between 50-99; 3=100 and more). An organization's age is measured in its established years, which is in line with what Al-Shammari, Brown, and Tarca (2008) applied in their paper. Each sub-section of the service industry of Thailand is measured using a nominal scale (Media & Publishing, Tourism & Leisure, Health Care Service, Commerce, Professional Services, Property Development, Banking, Finance & Securities, Insurance, Transportation & Logistics and others listed in MAI). A study of Fu and Jia (2012) on corporate financial performance by reviewing 63 studies from the 1990's concluded

that return on assets (ROA) has been the most common index in accounting-based indicator and followed by return on equity (ROE). Besides, the sample of this study is listed companies in Thailand, so market capitalization is investigated since it related to the total value of all shares in the company, the value of a company on the open market, and the market's view of its prospects. Therefore, the above three accounting factors are considered as control variables at the organizational level in this study, and data of the most recent year will be used. ROA and ROE are measured in percentages. Market capitalization is measured in million Baht.

3.5 Estimating Technique

This paper used Ordinal Least Squares (OLS) and hierarchical regression analyses to examine the data. OLS is one way used in making estimation and predication; besides, it allows researchers to analyze the relationships among variables. Hierarchical regression allows researchers to cumulatively input independent variables according to certain specific hierarchical structure that is proposed in advance by theory and logic of the research. The analysis was performed using IBM SPSS statistics version 23.

CHAPTER 4

RESULTS OF THE STUDY

While the methodology was defined, the conceptual model was developed, and the questionnaire was designed in the previous chapter. This chapter aims to conduct the research and test the hypotheses, by measuring the relationships among independent variables, intellectual capital with dependent variables, innovative behavior and absorptive capacity, along with their effects on organizational effectiveness.

4.1 Characteristics of the Respondents

For this study, a total of 289 public companies from 10 sectors of Services, Property & Constructions, and Financials industries on SET and MAI were reached by personal email addresses, company's official telephone, postal mail, and contact persons in February to April 2020. To encourage response, follow-up e-mails were sent to remind the non-respondents about the questionnaire survey every week. Of the 289 public companies that were reached, 482 managerial officers of 199 companies returned completed questionnaire surveys. After reverse coded items checking, 423 questionnaire surveys of 198 companies were valid, which reached 68.51% respondent rate at the organizational level. However, the respondent rate at the individual level cannot be specified because it relies on the distribution of the contact person from each company for each company that is uncontrollable. A respondent rate at the organizational level of 68.51% is adequate since a survey response rate of 50% or higher is considered sufficient for analysis (Rubin & Babbie, 2005). The demographic and organizational characteristics of the participants were reported in Table 4.1.

Table 4.1 Demographic Characteristics of Respondents and Organizations

Characteristics	**Descriptive statistics**
Respondents' characteristics	
Gender	Male: 232 (54.8%) Female: 191 (45.2%)
Age (in year)	Mean: 36.02 Standard deviation: 8.536
Level of Education	Less than a bachelor's degree: 11 (2.6%) Bachelor's Degree: 339 (80.1%) Master's Degree: 73 (17.3%) Doctoral Degree: 0 (0%)
Organization tenure	Less than 2 years: 68 (16.1%) 2 to 4 years: 136 (32.2%) 5 to 8 years: 93 (22%) More than 8 years: 126 (29.8%)
Organizational characteristics	
Age (in year, till 2019)	Mean: 34.77 Standard deviation: 18.438
Size	Less than 50: 44 (10.4%) Between 50 to 99: 56 (13.2%) 100 and more: 323 (76.4 %)
Industry Group	Financials industry group: 79 (18.6%) Property & Construction industry group: 83 (19.6%) Services industry group: 261 (61.6%)
Sub-sections	Banking sector: 12 (2.8%) Finance & Securities sector: 50 (11.8%) Insurance sector: 17 (4.0%) Property development sector: 83 (19.6%) Commerce sector: 78 (18.4%) Health care service sector: 21 (5.0%) Media & Publishing sector: 70 (16.5%) Professional service sector: 20 (4.7%) Tourism & Leisure sector: 26 (6.1%) Transportation & Logistics sector: 46 (10.9%)
ROA	Mean: 5.25% Standard deviation: 11.199
ROE	Mean: 14.85% Standard deviation: 14.859
Market Capitalization	Mean:34479.596 Million Baht Standard deviation: 111628.143

As showed in Table 4.1, from the individual-level perspective, four variables in the study functioning as control variables reflected the individual characteristics of the survey respondents, which are gender, age, educational level, and the years that they have been working in the current organization. The majority of the respondents were male (84.8%), and the average age was around 36 years old. Many managers hold a Bachelor's Degree (80.1%), and a small number of managers have an educational background that is less than a Bachelor's Degree (2.6%). Interestingly, there were no managers in this study holding a Doctoral Degree (0%), and the highest educational level of managers reached in this study is a Master's Degree (17.3%). It can be said that most public companies request at least a Bachelor's Degree from their employees. Lastly, most managers in this study have been working in the current organization between 2 to 4 years (32.2%), followed by more than 8 years (29.8%).

There were six variables controlled based on the perspective of the organizational level, and this study reached companies from all targeted industry groups and their sub-sections. Of the three industry groups, the highest percentage 61.6 % of companies are from the Services industry group, followed by 19.6 % are from the Property & Construction industry group, and the lowest percentage 18.6 % are from the Financials industry group. Besides, in the sub-sections, the most respondents from companies of the property development sector (19.6%) responded to this questionnaire survey. The average of established years for public companies in this study is 34.77 years, which indicates that most of the companies have been competing in the dynamic business world for years. It is important to note that most of the public companies have more than 100 employees (76.4%). It means there are a large number of employees in the majority of public companies in Thailand; thus, it is important for each manager of the company to properly manage and coordinate their subordinates.

4.2 Data Analysis and Results of the Study

4.2.1 Validity and Reliability Test

Since the questionnaire was adapted from prior studies (Cassol et al., 2016; Chiu et al., 2006; Dang et al., 2018; Eydi, 2013; Gold et al., 2001; Janssen, 2001;

Omoregie & Popoola, 2018; Sahin, 2010; Van Dijk et al., 2016), the questionnaire was tested for both content reliability and construct validity in order to reassure that the questionnaire fits the Thailand context. The reliability of each variable and its specific dimensions was tested via Cronbach Alphas (α) coefficient. As illustrated in Table 4.2, the results are reliable since the Cronbach Alphas (α) coefficient of each variable and its dimensions range from 0.746 to 0.947, which exceeds the widely suggested value of 0.7 (Fornell & Larcker, 1981; Nunnally, 1978). The highest Cronbach Alphas (α) coefficient was the variable of innovative behavior, which included nine items in the questionnaire. Next, the dependent variable of organizational effectiveness also reached a high Cronbach Alphas (α) coefficient as 0.942, which indicates the measurement by adapting previous studies were reliable.

Table 4.2 Reliability Statistics

	Variables	**Dimensions**			
	Innovative Behavior	Idea Generation	Idea Promotion	Idea Realization	
Cronbach alphas (α) coefficient	0.947	0.902	0.891	0.912	
	Intellectual Capital	Human Capital	Structural Capital	Customer Capital	
Cronbach alphas (α) coefficient	0.930	0.798	0.893	0.862	
	Social Capital	Structural Dimension	Relational Dimension	Cognitive Dimension	
Cronbach alphas (α) coefficient	0.939	0.797	0.931	0.857	
	Absorptive Capacity	Acquisition	Assimilation	Transformation	Exploitation
Cronbach alphas (α) coefficient	0.936	0.746	0.915	0.792	0.839

	Variables Dimensions
	Organizational Effectiveness
Cronbach alphas (α) coefficient	0.942

Furthermore, to test the structure of the questionnaire an Exploratory Factor Analysis (EFA) was performed in order to assess construct validity. Before performing the EFA, Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test need to be conducted in order to confirm if this sample size was suitable for factor analysis. Table 4.3 shows that KMO for overall variables were greater than 0.7; in the meanwhile, the P-value of Bartlett's test was 0.00, less than 0.05, so there was a nice construct validation in this sample and EFA could be continued as suggested by Hair, Black, Babin, Anderson, and Tatham (2006).

Table 4.3 KMO and Barlett's Test

Variables	Innovative Behavior	Intellectual Capital	Absorptive Capacity	Organizational Effectiveness	Social Capital
KMO measure of Sampling Adequacy	0.933	0.948	0.932	0.948	0.937
Bartlett's Test (Sig.)	0.000	0.000	0.000	0.000	0.000

An EFA using varimax rotation was applied on the 57 items. According to the result of the EFA, Table 4.4, all items have significant factor loading as expected on the main factor; besides, the loading values are more than 0.5 as suggested by Hair et al. (2006). This analysis resulted in a 5-components solution, innovative behavior, intellectual capital, absorptive capacity, organizational effectiveness, and social capital, which is consistent with the conceptual model in this study.

Table 4.4 Exploratory Factor Analysis (EFA)

	Component				
	1	**2**	**3**	**4**	**5**
Innovative Behavior					
INN.B 1	0.821	-	-	-	-
INN.B 2	0.830	-	-	-	-
INN.B 3	0.803	-	-	-	-
INN.B 4	0.825	-	-	-	-
INN.B 5	0.843	-	-	-	-
INN.B 6	0.846	-	-	-	-
INN.B 7	0.884	-	-	-	-
INN.B 8	0.855	-	-	-	-
INN.B 9	0.845	-	-	-	-
Intellectual Capital					
IC1	-	0.556	-	-	-
IC2	-	0.615	-	-	-
IC3	-	0.770	-	-	-
IC4	-	0.579	-	-	-
IC5	-	0.773	-	-	-
IC6	-	0.721	-	-	-
IC7	-	0.717	-	-	-
IC8	-	0.739	-	-	-
IC9	-	0.660	-	-	-
IC10	-	0.761	-	-	-
IC11	-	0.808	-	-	-
IC12	-	0.721	-	-	-
IC13	-	0.813	-	-	-
IC14	-	0.647	-	-	-
Absorptive Capacity					
ACAP 1	-	-	0.770	-	-
ACAP 2	-	-	0.775	-	-
ACAP 3	-	-	0.846	-	-
ACAP 4	-	-	0.859	-	-
ACAP 5	-	-	0.846	-	-
ACAP 6	-	-	0.679	-	-
ACAP 7	-	-	0.759	-	-
ACAP 8	-	-	0.807	-	-
ACAP 9	-	-	0.831	-	-
ACAP 10	-	-	0.799	-	-

	Component				
	1	**2**	**3**	**4**	**5**
Organizational Effectiveness					
OE1	-	-	-	0.819	-
OE2	-	-	-	0.728	-
OE3	-	-	-	0.846	-
OE4	-	-	-	0.811	-
OE5	-	-	-	0.867	-
OE6	-	-	-	0.859	-
OE7	-	-	-	0.833	-
OE8	-	-	-	0.760	-
OE9	-	-	-	0.830	-
OE10	-	-	-	0.777	-
Social Capital					
SC1	-	-	-	-	0.707
SC2	-	-	-	-	0.821
SC3	-	-	-	-	0.836
SC4	-	-	-	-	0.536
SC5	-	-	-	-	0.733
SC6	-	-	-	-	0.743
SC7	-	-	-	-	0.805
SC8	-	-	-	-	0.752
SC9	-	-	-	-	0.823
SC10	-	-	-	-	0.813
SC11	-	-	-	-	0.761
SC12	-	-	-	-	0.616
SC13	-	-	-	-	0.780
SC14	-	-	-	-	0.786

4.2.2 Correlation Analysis

Pearson correlation coefficients are used for analyzing bivariate correlations among variables in order to explore the one-on-one relationships between five key variables, which are innovative behavior, intellectual capital, absorptive capacity, organizational effectiveness, and social capital. Results from correlation analysis are illustrated in Table 4.5. The value of the Pearson correlation coefficients of intellectual capital on innovative behavior and absorptive capacity were 0.530 and 0.663 accordingly, in addition to the significance value were less than 0.01, which means the correlation is highly significantly positive. In other words, the higher

intellectual capital an organization has, the greater performance on employees' innovative behavior in the workplace and the absorptive capacity of the organization. There were significantly positive correlations between organizational effectiveness and its determinants, innovative behavior and absorptive capacity, with correlation coefficients 0.636 and 0.810 accordingly. It indicates that the higher level an organization reaches on its employees' innovative behavior at the workplace and absorptive capacity of the organization, then the organizations can gain better organizational effectiveness. Besides, the correlation between the absorptive capacity and organizational effectiveness reached the highest Pearson correlation coefficient among all main variables. It reveals that the absorptive capacity of a firm can best explain a firm's organizational effectiveness. Previous studies are mainly concentrated on intellectual capital and organizational performance (Bontis et al., 2000; Riahi-Belkaoui, 2003; Youndt & Snell, 2004), the correlation result with a coefficient of 0.691 in Table 4.5 shows there was a significantly positive correlation between intellectual capital and organizational effectiveness. It indicates when intellectual capital is increased, it may directly impact the development of the organizational effectiveness in service-oriented organizations. Furthermore, the significantly positive correlation with a coefficient of 0.669 demonstrated that intellectual capital may also positively affect social capital, which supports the study of Nahapiet and Ghoshal (1998). In this study, social capital played a moderating role in this study. Form Table 4.5, social capital also has a significant and positive correlation with other variables, innovative behavior, absorptive capacity, and organizational effectiveness, with correlation coefficients of 0.480, 0.614, and 0.583 accordingly. The findings indicate that social capital could also play a role as an independent factor to produce effects in service-oriented organizations in Thailand. In addition to the main variables, there were some interesting findings that are consistent with a rule of thumb from this correlation analysis. First of all, people normally learn an increasing number of knowledges with age in general; besides, working experience is accumulated with age as well. These statements are supported by the positive and significant correlation among intellectual capital with managers' age and their working experience along with coefficients of 0.156 and 0.115. Secondly, the correlation between an organization's age and size was significant and positive with a

coefficient of 0.249. It means the longer the company has been established, the larger the size of the company will be. Lastly, an organization's age was also positively related to managers' age in the correlation analysis results with a coefficient of 0.142. This indicates that some managers are growing together with their companies, which also reflects the ability of a firm to maintain its employees.

Table 4.5 Correlation among Variables

Variables	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
1. Innovative Behavior	.530**	.594**	.636**	.480**	-.005	.027	-.036	.007	.124*	-.011	.082	-.057	-.121*	-.036
2. Intellectual Capital	1	.663**	.691**	.669**	.057	.006	-.065	-.110*	.156**	.055	.115*	-.023	-.124*	.115*
3. Absorptive Capacity	-	1	.810**	.614**	-.038	.024	-.007	-.075	.090	-.042	.070	-.049	-.110*	.052
4. Organizational Effectiveness	-	-	1	.583**	-.039	.009	-.064	-.086	.142**	.011	.079	-.066	-.178**	.069
5. Social Capital	-	-	-	1	-.035	-.034	-.034	-.081	.089	-.017	.063	-.032	-.081	-.027
6. Organization's age	-	-	-	-	1	.249**	-.140**	.018	.142**	.122*	.066	-.087	.026	.139**
7. Organizational size	-	-	-	-	-	1	-.028	.043	.035	.027	.025	.146**	.019	.144**
8. Type of organization	-	-	-	-	-	-	1	.073	-.071	-.008	-.047	-.035	-.033	-.224**
9. Gender	-	-	-	-	-	-	-	1	-.062	-.090	.067	.059	.041	.004
10. Age	-	-	-	-	-	-	-	-	1	.269**	.435**	.055	.018	-.001
11. Education	-	-	-	-	-	-	-	-	-	1	.076	-.012	-.032	-.039
12. Working experience	-	-	-	-	-	-	-	-	-	-	1	.070	.019	.070
13. ROA	-	-	-	-	-	-	-	-	-	-	-	1	.294**	.062

Variables	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
14. ROE	-	-	-	-	-	-	-	-	-	-	-	-	1	.006
15. Market Capitalization	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.2.3 Regression Analysis

Ordinary least squares (OLS) regression was used to test the hypotheses. In addition, the Variance Inflation Factor (VIF) was evaluated for checking the possible problem of multicollinearity among all variables in each equation. Moreover, control variables at the organizational levels were controlled in each test. Hypothesis 1 predicts a positive relationship between intellectual capital and innovative behavior in the workplace. Hypothesis 2 forecasts a positive relationship between the intellectual capital and absorptive capacity of a firm. The results of the regression model as well as VIF for hypotheses 1 and 2, shown in Table 4.6, reveal that there were no problems of multicollinearity among variables due to their value of VIF were less than 10 (suggested by Hair, Black, Babin, Anderson, & Tatham, 1998); importantly, the relationship between intellectual capital with innovative behavior (β=0.715; $p<0.01$) and absorptive capacity (β=0.712; $p<0.001$) are positive and statistically significant. Thus, both hypotheses 1 and 2 are supported. In addition to this main independent variable, one control variable that has a slightly significant negative relationship with innovative behavior is market capitalization (β=-0.000; $p<0.05$). Besides, there was a control variable significantly and negatively related to absorptive capacity, which is the organization's age (β=-0.003; $p<0.05$). The R-square of hypotheses 1 and 2 reveals that 29.8% of innovative behavior and 45.0% of absorptive capacity can be explained by intellectual capital. Lastly, F value statistics of both regression models were significant, which means there was at least one independent variable that affects innovative behavior and absorptive capacity.

Table 4.6 Regression Results of Hypotheses 1 and 2

Independent Variables	**Dependent Variables**			
	Innovative Behavior Hypothesis 1		**Absorptive Capacity Hypothesis 2**	
	Beta Coefficients	**VIF**	**Beta Coefficients**	**VIF**
Intercept	0.792**		1.010***	
Intellectual Capital	0.715***	1.034	0.712***	1.034
Organization's Age	-0.002	1.121	-0.003*	1.121
Organizational Size	0.065	1.115	0.048	1.115
Type of Organization	-0.011	1.071	0.005	1.071
ROA	-0.003	1.147	-0.002	1.147

Independent Variables	Dependent Variables			
	Innovative Behavior Hypothesis 1		Absorptive Capacity Hypothesis 2	
	Beta Coefficients	VIF	Beta Coefficients	VIF
ROE	0.000	1.118	0.000	1.118
Market Capitalization	-0.000*	1.095	0.000	1.095
R-square	0.298		0.450	
Adjusted R-square	0.286		0.441	
Durbin-Watson	2.020		1.947	
F statistics	25.190***		48.545***	

Note: Unstandardized beta coefficients are reported

*** p<0.001, ** p<0.01, * p<0.05

Hypothesis 3 predicts that innovative behavior in the workplace is positively associated with organizational effectiveness. Hypothesis 4 mentions that the absorptive capacity of a firm positively influences organizational effectiveness. The testing process commenced with the hypothesized model with one determinant, innovative behavior, plus the effects of the control variables at the organizational level, which is shown in Model 1 in Table 4.7. It reveals that innovative behavior in the workplace is statistically significantly and positively related to organizational effectiveness (β=0.555; p<0.001). The control variables of ROE (β=0.000; p<0.05) and market capitalization (β=0.000; p<0.05) were significant and positive to organizational effectiveness. Besides, this model can explain about 42.7% of organizational effectiveness based on its R-square. The other hypothesized model incorporates the other determinant, absorptive capacity, and all control variables at the organizational level as illustrated in Model 2 in Table 4.7. The relationship between the absorptive capacity of a firm and organizational effectiveness is also positive and statistically significant (β=0.886; p<0.001). In addition to the main independent variable, the control variable of ROE was also significantly and positively associated with organizational effectiveness (β=0.000; p<0.01). Moreover, Model 3 in Table 4.7 includes both determinants plus all control variables at the organizational level for assessing if there are any differences. Similarly, both variables of innovative behavior and absorptive capacity still significantly and positively referred to organizational

effectiveness (β=0.209; p<0.001 and β=0.731; p<0.001 accordingly). Moreover, the relationship between ROE and organizational effectiveness was significant and positive as well (β=0.000; p<0.01). Noteworthy, even though the beta coefficients of innovative behavior and the absorptive capacity were decreased by comparing with model 1 and model 2, the R-square of Model 3 was 0.703, which is 64.64% higher than Model 1 (R^2=0.427), and 6.19% greater than Model 2 (R^2=0.668). This result indicates when both innovative behavior in the workplace and the absorptive capacity of a firm existed in the regression model, the 70.3% of organizational effectiveness can be explained by this model, which is greater than if only one of them occurred in the model. Table 4.7 also presents there were no problems of multicollinearity among the variables in three models. Besides, the F value statistics for these three models were all significant, it rejected the null hypothesis that all of the regression coefficients are equal to zero.

Table 4.7 Regression Results of Hypotheses 3 and 4

Variables	**Dependent Variable Organizational Effectiveness**					
	Model 1 Beta Coefficients	**VIF**	**Model 2 Beta Coefficients**	**VIF**	**Model 3 Beta Coefficients**	**VIF**
Intercept	1.925***	-	0.561***	-	0.399**	-
Innovative Behavior	0.555***	1.021	-	-	0.209***	1.573
Absorptive Capacity	-	-	0.886***	1.019	0.731***	1.570
Organization's Age	-0.002	1.119	-0.001	1.122	-0.001	1.122
Organizational Size	-0.006	1.116	-0.008	1.116	-0.013	1.116
Type of Organization	-0.009	1.073	-0.017	1.070	-0.014	1.074
ROA	-0.001	1.147	0.000	1.148	0.000	1.148
ROE	0.000*	1.114	0.000**	1.111	0.000**	1.115
Market Capitalization	0.000*	1.087	0.000	1.087	0.000	1.098
R-square	0.427	-	0.668	-	0.703	-
Adjusted R-square	0.417	-	0.662	-	0.697	-

Variables	Dependent Variable Organizational Effectiveness					
	Model 1 Beta Coefficients	VIF	Model 2 Beta Coefficients	VIF	Model 3 Beta Coefficients	VIF
Durbin-Watson	1.999	-	1.1982	-	2.024	-
F statistics	44.176***	-	119.206***	-	122.505***	-

Note: Unstandardized beta coefficients are reported

*** p<0.001, ** p<0.01, * p<0.05

Hypothesis 5a and 5b are the interactive models proposed in this study, in which hypothesis 5a predicts that the organizations with a higher level of social capital will have a better positive influence of intellectual capital on innovative behavior in the workplace than the organizations with a lower level of social capital, and hypothesis 5b foretells that the organizations with a higher degree of social capital will have a greater positive effect of intellectual capital on the absorptive capacity of a firm. To avoid the multicollinearity arising when testing the regression model among variables, the process of centralizing variables proceeded before generating interaction terms (Cohen, Cohen, West, & Aiken, 2013). Thus, the independent variables, intellectual capital and social capital, were adjusted by mean centering to receive their Z score. Then, interaction terms were computed by multiplying the intellectual capital with social capital. Lastly, hierarchical multiple regression analysis was tested by entering interaction term after main terms, both intellectual capital and social capital, had already been entered. Besides, control variables at the individual level, gender, age, educational level, and working experience, were excluded in both Model 4 and Model 7. Model 4 and Model 7 were investigated the effects of intellectual capital on innovative behavior and the absorptive capacity based on the organizational level, so those control variables at the individual level were excluded. However, control variables at the both individual and organizational level were assessed in Model 5, 6, 8, and 9, because those models involve the variable of social capital. Social capital was investigated the relations between managers and others. Managers with different demographic characteristics may have effects on their relationship with others. As a consequence, Table 4.8

presented the regression analysis results of the moderating effects on innovative behavior (Model 4 to 6) and absorptive capacity (Model 7 to 9).

As illustrated in Table 4.8, Model 6 shows that the interaction between intellectual capital and social capital was statically significant, and positively related to innovative behavior (β=0.123; p<0.001). Thus, hypothesis 5a was supported. The control variables together accounted for 39.7% of the variance in innovative behavior (R^2=0.397), which has the strongest effects than simple effects (without the moderating effect) plus the effects of the control variables in Model 4 and Model 5. On the other hand, Model 9 indicates there was statistically significant and positive correlation within the interacting variable and absorptive capacity (β=0.114; p<0.001). Hypothesis 5b, therefore, was supported as well. Together with control variables, 59% of the variance in absorptive capacity can be explained by Model 9 (R^2=0.590), which reaches the highest percentages among Model 7 to Model 9. In addition to the main variables, the results also show that market capitalization significantly and negatively related to innovative behavior in both Model 4 (β=0.000; p<0.05) and Model 5 (β=0.000; p<0.05). In Model 6, there relationship remains negative but not statistically supported. What is more, organization's age significantly and negatively related with the absorptive capacity in Model 7 (β= -0.003; p<0.05) and Model 9 (β= -0.002; p<0.05).

Table 4.8 Regression Results of Moderating Effects

Variables	**Dependent Variables**					
	Innovative Behavior			**Absorptive Capacity**		
	Model 4	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**
Intercept	3.550***	3.426***	3.360***	3.756***	3.853***	3.793***
Intellectual Capital (Z)	0.421***	0.309***	0.320***	0.419***	0.291***	0.301***
Social Capital (Z)	-	0.164***	0.226***	-	0.188***	0.246***
IC(Z) x SC (Z)	-	-	0.123***	-	-	0.114***
Control Variables	-	-	-	-	-	-
Organization's Age	-0.002	-0.001	-0.002	-0.003*	-0.002	-0.002*
Organizational	0.065	0.064	0.062	0.048	0.050	0.047

Variables	Dependent Variables					
	Innovative Behavior			Absorptive Capacity		
	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Size						
Type of Organization	-0.010	-0.009	-0.008	0.005	0.007	0.008
Gender	-	0.113	0.107	-	-0.006	-0.012
Age	-	0.006	0.004	-	0.001	0.000
Educational Level	-	-0.079	-0.065	-	-0.091	-0.078
Working Experience	-	0.003	0.013	-	0.000	0.010
ROA	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002
ROE	0.000	0.000	0.000	-0.000	-0.000	0.000
Market Capitalization	-0.000*	-0.000*	-0.000	-0.000	0.000	0.000
R-square	0.298	0.332	0.397	0.450	0.504	0.590
Adjusted R-square	0.286	0.312	0.377	0.441	0.489	0.577
Maximum full VIF	1.147	1.951	1.969	1.147	1.951	1.969

Note: Unstandardized beta coefficients are reported

*** p<0.001, ** p<0.01, * p<0.05

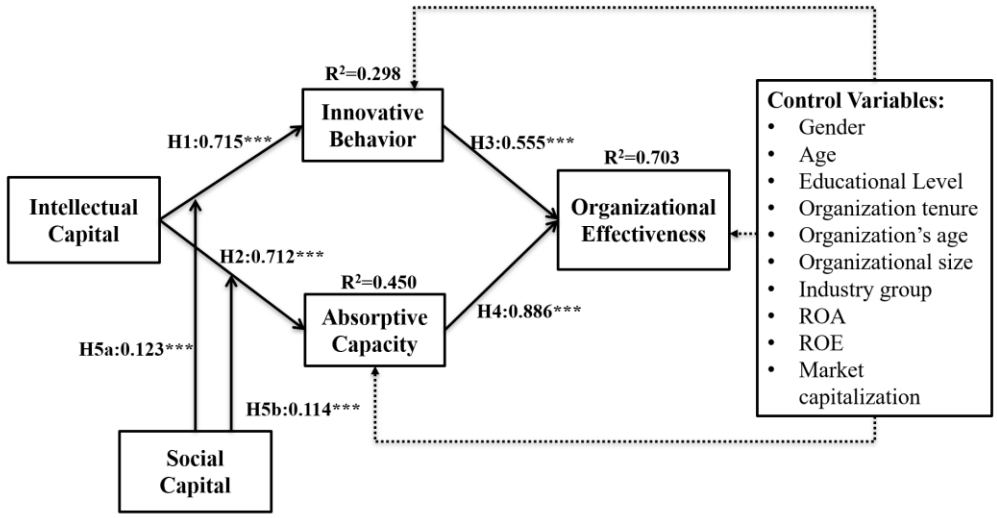


Figure 4.1 Regression Results

4.3 Conclusion

The intention of this study was to observe associations with intellectual capital, which can reinforce innovative behavior in the workplace and the absorptive capacity of a firm; and the influence of innovative behavior and absorptive capacity on organizational effectiveness as its two determinants. Based on the results of the collected data analysis with IBM SPSS Statics 23, the findings were epitomized to the objectives of the research. The statistical outputs and research results are as expected and vitally encouraging, as well as consistent with previous researches and the literature.

Hypothesis 1 proposed that the intellectual capital of an organization is positively related to employees' innovative behavior in the workplace. The result from OLS regression analysis showed this statement was statically significant and positive. This result is consistent with a study of Mura et al. (2012), which used samples from Italy. Besides, this relationship was strong in the model as its beta coefficient value was over 0.7, it supports a study of Örnek and Ayas (2015), that concludes it is important for firms to transfer their intellectual capital into employees' innovative work behavior. In addition to the main variable, the finding also shows a control variable at the organizational level, market capitalization, was negatively related to employees' innovative behavior in the workplace even though it was small in value. This finding is converse with a survey of Davis (2000 quoted in Isaksen & Akkermans, 2011) and a study of Isaksen and Ekvall (2010) that found innovative organizations with better climates tends to have higher degree of growth in market capitalization. However, the results of correlation analysis found a significant and positive correlation between intellectual capital and market capitalization. This evidence is consistent with a study of Abdolmohammadi (2005) that found intellectual capital disclosure and market capitalization existed a highly significant and positive correlation.

Hypothesis 2 states that intellectual capital is positively associated with the absorptive capacity of a firm, which was supported by the findings. The estimates of the OLS regression weight from intellectual capital to the absorptive capacity of a firm was over 0.7, which was significantly high as hypothesis 1. The result of

intellectual capital positively associating with absorptive capacity is consistent with extant previous studies (Cassol et al., 2016; Soo et al., 2017; Yan et al., 2002). In addition, the result considerably supports the absorptive capacity model proposed by Zahra and George (2002) as well as Cohen and Levinthal (1990); that is, external knowledge sources and complementarity and the experiences significantly affect a firm's absorptive capacity. Furthermore, the finding also found the significant and negative relation between organization's age with the absorptive capacity. This result is consistent with previous studies (Hannan & Freeman, 1984; Huergo & Jaumandreu, 2004; Zou, Ertug, & George, 2018), that indicate young companies have greater the absorptive capacity than mature companies since they are less influenced by inertial of organizations.

Furthermore, this study hypothesized that innovative behavior in the workplace and the absorptive capacity of a firm are the positive determinants of organizational effectiveness in hypothesis 3 and hypothesis 4, accordingly. The OLS regression results significantly supported both hypotheses, which implies that organizational effectiveness can be enhanced by either employees' innovative behavior in the workplace or firms' absorptive capacity. In other words, innovative behavior and absorptive capacity are able to be alternative factors for the constructs of knowledge infrastructure capability and knowledge process capability in the framework of Gold et al. (2001) accordingly. In general, the findings are in line with the framework of organizational effectiveness proposed by Gold et al. (2001), organizational effectiveness can be improved through knowledge infrastructure and knowledge processing. Also, the findings are consistent with a more detailed evaluation for the framework of Gold et al. (2001) which was suggested by Mills and Smith (2011) for the purpose of having a more fundamental understanding of knowledge management on organizational effectiveness. In fact, this model can be an alternative model to measure a firm's organizational effectiveness in two main reasons. On one hand, the model of Gold et al. (2001) focused on the components that construct knowledge capabilities; however, they did not emphasize the way to turn those particular resources to a firm's organizational effectiveness. The resource-based theory states that resources cannot create value to a firm by themselves, so the methods to utilize resources are more important for a firm in the dynamic business

world. On the other hand, the knowledge management capabilities of Gold et al. (2001) are two broad concepts which cover various aspects. Some companies may not have the ability to improve all aspects, so Mills and Smith (2011) states that the firm should place emphasis on individual knowledge enablers and procedures to improve a firm's organizational effectiveness. Thus, the detailed evaluation proposes that employees' innovative behavior in the workplace and the absorptive capacity can impact a firm's organizational effectiveness in this study, and they were supported by the findings. To be more specific, the beta coefficient value in the regression results of hypothesis 3 was 0.555; moreover, the results show that employees' innovative behavior in the workplace has a direct and positive relation with organizational effectiveness. Most of the previous studies weight the organization's innovation on organizational performance or effectiveness (Han et al., 1998; Lee & Sukoco, 2007). However, the findings show that organizational effectiveness can be improved by employees' innovative behavior in the workplace. In addition, scholars defined that organizational performance is one component of organizational effectiveness (Cameron & Whetten, 1983), so the regression result of hypothesis 3 in this study is consistent with a study of Hogan and Coote (2014), which found innovative behavior can measure firm performance. As a consequence, for organizations without achievement of innovation, managers can put effort into enhancing employees' innovative behavior in the workplace as there will be a similar effect on organizational effectiveness. Based on the theory of absorptive capacity, the absorptive capacity of a firm relates to the ability of an organization to identify, assimilate, transform, and exploit external knowledge for improving the competitive advantage of an organization, such as innovation performance and strategic flexibility (Cohen & Levinthal, 1990; Zahra & George, 2002). The outcomes of the absorptive capacity of a firm are in consensus on the center point of organizational effectiveness from a management perspective, that is, focusing on the unique capacity of an organization to reach success through its core strategies (McCann, 2004). In other words, the improvement of the absorptive capacity of a firm can definitely reinforce its organizational effectiveness. The findings of this study found this relationship was strong in both Model 2 and Model 3 as its beta coefficient values were 0.886 and 0.731 accordingly, so the relation of the absorptive capacity of a firm positively

correlating to organizational effectiveness was significantly supported. As mentioned before, firm performance is one component of organizational effectiveness (Cameron & Whetten, 1983); thus, the findings of regression analysis on hypothesis 4 in this study can support a study of Lane et al. (2001) which investigated on all the components of absorptive capacity, and found that exploiting the ability of absorptive capacity positively impacts firm performance. Therefore, it is significant for managers to assist in exploring, assimilating, transforming, and applying the knowledge and experience resources for achieving more effective and greater firm performance. In addition to main variables, the results found that ROE was significantly and positively related to organizational effectiveness in Model 1 to 3. Since organizational performance is one component of organizational effectiveness, this finding is consisted with a study of Delery and Gupta (2016) that states higher value of ROE indicate greater organizational performance. Lastly, the finding also presented that market capitalization had significant and positive relation with the organizational effectiveness in Model 1. To achieve competitiveness is one of aspect of organizational effectiveness, so this finding is accordance with a study of Nixon et al. (2004 quoted in Sheaffer, Carmeli, Steiner-Revivo, & Zionit, 2009) that mentions market capitalization can increase a firm's revenue as well as improve corporate capability to control competitiveness.

Intellectual capital is known to positively impact innovation (Wu et al., 2008), innovative behavior (Xerri & Brunetto, 2011), and absorptive capacity (Upadhyayula & Kumar, 2004), but few studies have tested the organization's intellectual capital impact through social capital. In this study, therefore, extends the intellectual capital examination regarding social capital. Hypothesis 5a proposed that the organizations with a higher level of social capital will have a better positive influence of intellectual capital on innovative behavior than the organizations with a lower level of social capital. Hypothesis 5b stated that the positive influence of intellectual capital on an organization's absorptive capacity will increase when organizations possess higher levels of social capital. The findings of this study supported the above two hypotheses, which are consistent with a previous study of Lee and Sukoco (2007) who collected and tested the moderating role of social capital in Taiwan. Moreover, the findings were also contrary to some previous studies. For instance, the study of Mura

et al. (2013) found social capital has a relevant moderation effect on the linkage between knowledge sharing and innovative behavior. A study by Lin and Huang (2005) tested the role of social capital in the relationship between human capital and career mobility, and results showed the mediating effect of social capital was support but not the moderating effect. Zheng, Wu, and Xie (2017) have explored the relationship between leadership and innovation by considering different levels of social capital additionally, along with a result of the moderated mediation effect of social capital in project-based organizations. In addition, the output showed a higher value of R-square in the model involving the interaction term of intellectual capital and social capital than the models that did not involve the interaction term. This finding indicates that an organization's intellectual capital can have a better explanation for innovative behavior in the workplace and the absorptive capacity of a firm when social capital exists in the organization. In addition to the main hypothesized moderating effects of social capital, the findings of this study suggest that social capital is also an important construct for employees' innovative behavior in the workplace and the absorptive capacity of a firm, which is consistent with previous studies (Mura et al., 2013; Upadhyayula & Kumar, 2004; Xerri & Brunetto, 2011; Yu, 2013). Furthermore, the control variable of market capitalization was negatively related to innovative behavior in Model 4 to 6 which was accordant with the results of hypothesis 1. These results were statically supported in Model 4 and Model 5, but not Model 6. Besides, the control variable of organization's age was negatively associated with the absorptive capacity same as the results of hypothesis 2. These results were statically supported in Model 7 and Model 9, but not Model 8.

Table 4.9 Results of Hypotheses

Hypotheses		**Beta Coefficient**	**Result**
Hypothesis 1	The intellectual capital of a firm will positively impact the employees' innovative behavior in the workplace.	0.715***	Supported
Hypothesis 2	The intellectual capital of a firm will	0.712***	Supported

Hypotheses		Beta Coefficient	Result
	positively associate with the absorptive capacity of a firm.		
Hypothesis 3	Employee's innovative behavior in the workplace is positively relevant to organizational effectiveness.	0.555***	Supported
Hypothesis 4	The absorptive capacity of a firm positively impacts its organizational effectiveness.	0.886***	Supported
Hypothesis 5a	The positive influence of intellectual capital on employees' innovative behavior in the workplace will be increased when organizations possess a greater extent of social capital.	0.123***	Supported
Hypothesis 5b	The positive influence of intellectual capital on the absorptive capacity of a firm will be improved when organizations possess a greater extent of social capital.	0.114***	Supported

Note: Unstandardized beta coefficients are reported
*** p<0.001, ** p<0.01, * p<0.05

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

The study findings offered strong support for the research hypotheses. The results indicated that two determinants have a statistically significant relationship with organizational effectiveness, as well as being reinforced by intellectual capital. In this section, the results referring to the research are concluded. In addition, findings along with the contribution of the study on both theoretical and practical implications are discussed. Finally, the study findings that could give some direction for future research are discussed; besides, the limitations of the study are also presented.

5.1 Discussion

This research study has investigated the listed companies of the service industry; the sample size was 423 managers representing 198 listed companies in Thailand. The demographic data of the respondents at the individual level showed some interesting findings as follows. First of all, the average age of Thai managers was approximately 36 years old, which is a mature age. The reason might be that age can increase a person's level of ethical maturity in the workplace, which is an important characteristic of individual in an organization, especially related to ethical decision-making (Mujtaba, Cavico, & Sungkhawan, 2011). Next, only 2.6 percent of managers did not hold a bachelor's degree, and 80.1 percent of managers in this study held a bachelor's degree, which reveals a bachelor's degree is the minimum requirement for entering a public company nowadays. Lastly, the tenure of the largest number of managers were 2 to 4 years. The short period of tenure reflects there might be a problem of job satisfaction in Thai listed companies as suggested by Sarker, Crossman, and Chinmeteepituck (2003), that tenure is a predictor of job satisfaction; to be more specific, satisfied employees remain with the organization, while dissatisfied employees leave to obtain better employment elsewhere. The

demographic data at the organizational level shows that 76.4 percent of listed companies have more than 100 employees, so effective management in the firm is significant. The empirical results generally supported the research hypotheses by revealing the associations of intellectual capital and two determinants, innovative behavior and absorptive capacity, that significantly affect organizational effectiveness. The exploratory factor analysis and the conceptual model hypothesized were seen to fit the collected data. The present study highlights that to reach a high degree of organizational effectiveness, innovative behavior and absorptive capacity should be enhanced; besides, intellectual capital is a significant resource to improve both factors in the dynamic business environment. To have a more detailed discussion, each hypothesis will be reviewed in the following parts.

5.1.1 Intellectual Capital and Innovative Behavior

Based on the resource-based theory, valuable, rare, difficult to imitate, and non-substitutable resources can help a firm to reach a sustainable competitive advantage (Barney, 1991). Scholars define intellectual capital as formalized, captured, and leveraged intellectual material for creating valued assets and attaining financial profits; and those materials can be experience, information, knowledge, intellectual property, and technologies (Skandia, 1994; Stewart, 1997, 1998). In general, one's experience or knowledge are a long-term accumulation from time, education, and what he or she has gone through. Thus, these experiences or knowledge are difficult to imitate by others. Besides, corporate information, intellectual property, and technologies are valuable and sometimes non-substitutable by other resources. Those are reasons that intellectual capital is viewed as the most pivotal resource for today's firm to survive in a dynamic business environment.

In the meanwhile, innovation is found as a meaningful factor for firms to achieve sustained competitive advantages under an intensively competitive business environment (Damanpour et al., 2009). However, to develop, adopt, and implement innovations in organizations extensively relies on employees' innovative behavior in the workplace (Cingöz & Akdoğan, 2011). Innovative behavior is a dynamic and multi-stage procedure that involves generating, introducing, and applying valuable newness at any level in an organization (Janssen et al., 2004; Kleysen & Street, 2001;

Scott & Bruce, 1994). Thus, new resources, knowledge, or information are vital for a firm to improve its employees' innovative behavior in the workplace. In addition, from the knowledge-based view of firms, the base of innovativeness relies on corporate intangible assets; besides, it is directly relevant to the capability of a firm to manage its intellectual capital (Santos-Rodrigues & Figueroa, 2007). Thus, the first hypothesis of this study proposed that the intellectual capital of a firm would positively impact the employees' innovative behavior in the workplace.

The findings of this study significantly support this hypothesis. This is an indicator, where managers realize and understand that intellectual capital is an important factor to facilitate their employees' innovative behavior in a firm, they should recognize their strategic possibilities as an organization and promote the organization's intellectual capital. First and foremost, the human capital of intellectual capital indicates that employees play an important role in terms of improving their own innovative behavior in the workplace. For instance, the first item to measure a firm's human capital of intellectual capital is "employees participate in company decisions". When employees need to express their opinions, it encourages them to come up with their own ideas; at the same time, they can be motivated to be innovative in the workplace. The other item to measure human capital is "the employees have a high level of education or qualification". This indicates that firms should try their best to recruit and retain proficient and competitive staff. For instance, when an employee has a solid educational background or abundant working experience, he or she could apply these resources to improve the firm, such as, working procedures, creating new methods to deal with business, and so on, which could be called innovative behavior in the workplace. Based on the items of " the company makes a long-term investment in its employees" and "the company will not be at a loss if a key employee leaves", firms should invest in long-term training for those staff members when they could not recruit proficient staff. To advance employee skills can not only strengthen the ability of employees, but also enables managers to put the right person on the right job more easily and flexibly. Secondly, the structural capital of intellectual capital reveals the organizational environment can have an influence on employees' innovative behavior in the workplace. For example, the items to measure structural capital involve "the company implements new ideas",

"the company supports ideas for development", and "supportive atmosphere for working". When a firm supports or executes new ideas, it proves to employees that their ideas are seen and accepted by the company, so employees will be motivated at the same time. Therefore, managers should be open to new ideas in order to make employees feel they are supported. Lastly, the items measuring customer capital such as "partnerships with suppliers and customers are strong" present the importance of building relations with suppliers and customers. To keep a good relationship with customers and suppliers can assist a firm in receiving rapid feedback from customers or suppliers so it can adjust marketing strategies for surviving in the dynamic business environment. Overall, organizations invest in their intellectual capital, underlying a higher frequency of employees' innovative behavior in the workplace.

5.1.2 Intellectual Capital and Absorptive Capacity

Intellectual capital is counted as corporate resources, but resources do not create value (Penrose & Pitelis, 1959). By creating value for an organization, intellectual capital should be effectively utilized. According to this, firms need to develop their absorptive capacity. Absorptive capacity is a corporate ability to value, assimilate, and utilize new, external knowledge for commercial purposes (Cohen & Levinthal, 1990). Mariano and Walter (2015) reviewed 186 articles related to Cohen and Levinthal's (1990) seminal work, and then pointed out that prior knowledge and knowledge source constitute the antecedents of absorptive capacity, which is in line with the absorptive capacity model proposed by Cohen and Levinthal (1990) as well as Zahra and George (2002). Based on previous studies on intellectual capital (Marr et al., 2002; Skandia, 1994; Stewart, 1997, 1998; Sullivan, 1998), prior knowledge and knowledge source are parts of intellectual capital. In fact, intellectual capital includes three categorizations which are human capital, structural capital, and customer capital (Bontis, 1998). To be specific, human capital involves all competences and capabilities of individuals working in an organization (Lynn, 2000); structural capital contains the whole internal structure of organizations, such as organizational process, routines (Bontis et al., 2000); and customer capital refers to external intangibles of the organization like knowledge rooted in related industry associations or customers (Bontis, 1998).

Without a doubt, human capital could positively improve a firm's absorptive capacity since an individual's knowledge and experiences can be counted as a knowledge source for a firm. Organizational processes or routines can decide the effectiveness and efficacy of absorptive capacity. This is because the first process of absorptive capacity is acquisition; the quality of acquisition capabilities of an organization can be determined by the intensity and speed of an organization's attempt to realize and assemble knowledge (Kim, 1997). Complicated organizational processes certainly will reduce the speed and intensity of acquiring knowledge. As for customer capital, this is a pathway to collect external information from either customers or suppliers, which can be considered as knowledge sources. Therefore, the second hypothesis of this study stated that the intellectual capital of a firm would positively associate with the absorptive capacity of a firm.

The second hypothesis was supported by the findings of this study, which suggests that an organization should continuously collect knowledge resources and experiences in order to facilitate its absorptive capacity. According to this study, the measured items of human capital suggest that personnel is the key to implement a firm's absorptive capacity. Besides, the absorptive capacity is a multi-stage process, so companies that have a majority of employees with long-term working time in the company can bring a higher level of absorptive capacity. Thus, managers should try to retain their employees. In addition, the items of structural capital also investigate corporate systems, such as "the transaction time in the company is decreasing" and "the systems of the company allow information accessing easily". These items demonstrate that adjusting organizational structure for fitting the dynamic business environment is also vital for increasing the extent of a firm's absorptive capacity. Information flowing is contingent on organizational structure, so the more flexible the structure is, the more easily information can flow throughout the organization. Therefore, it suggests that managers should observe if their organizational structure allows enough information to flow among organizational members for them to have resources or information to improve the absorptive capacity of a firm. Besides, the result of regression analysis shows that organization's age is negatively related to a firm's absorptive capacity due to the problem of organizational inertia. Thus, managers should supervise the status of an organization in order to avoid this problem

by continuously collecting external knowledge or information, in order to promote the following processes of assimilation, transformation, and exploitation. Both knowledge and experience are held by individuals, so it is important for a firm to possess knowledgeable and experienced staff. In other words, the more knowledge or working experience employees own, the higher magnitude of intellectual capital in an organization. Thus, it is more important to encourage employees to fully work for the firm by applying their knowledge and experiences. To effectively encourage employees, a firm needs to improve its HR practice, such as providing employment security, fair and performance-based compensation, making information easily followable to staff who need it, establishing a flat organization, etc. At the same time, a firm could have a better capability to search for assimilate, transform, and utilize those intangible resources.

5.1.3 Innovative Behavior and Organizational Effectiveness

Organizational effectiveness is the most general and important objective of organizations nowadays. It refers to an organization as a social system that, given inevitable resources and methods, executes its objectives without the loss of its resources and methods and without placing too much pressure on its members (Georgopoulos & Tannenbaum, 1957). To improve a firm's organizational effectiveness, knowledge management has been emphasized in a firm (Wiig, 1997), because knowledge management builds a capacity to enhance efficient management together with information and knowledge flow throughout the organization (Mills & Smith, 2011). A framework proposed by Gold et al. (2001) determines that the knowledge management capability of a firm can be clarified as knowledge infrastructure capability and knowledge process capability. Based on this framework, knowledge infrastructure capability involves three main dimensions: organizational structure, culture, and technologies. Anderson et al. (2014) state that innovative behavior at the organizational level relates to networks, structure, resources, culture, and climate, etc., These facets are in consensus with the organizational structure of knowledge infrastructure capability which refers to the organizational hierarchy, norms, rules, regulations, and trust mechanisms (Herath, 2007; O'dell & Grayson, 1998). These facets are also consistent with the culture dimension, that supposes an

accumulation of faiths, values, symbols, and behaviors (Ho, 2009). Even innovative behavior at the organizational level does not focus on the technology component as knowledge infrastructure capability, it enables a firm to analyze its relationship with organizational effectiveness since innovative behavior is a knowledge process that includes problem recognizing, and creating solutions for problems (Carmeli et al., 2006). In addition, Kanter (1988) states that innovative behavior is a vital asset that allows a firm to be competitive and succeed in an aggressive business environment. Thus, the third hypothesis of this study proposed that employees' innovative behavior in the workplace is positively relevant to organizational effectiveness.

The findings of this study significantly support this hypothesis. This is an important indicator for both scholars and practitioners that employees' innovative behavior can improve a firm's organizational effectiveness, which also proves that personnel are vital in a firm. For years, firms emphasized the importance and benefits of innovation. However, innovation is an outcome and some companies may not receive it because of time or budget limitation. The supported findings in this study call attention to this. In particular, innovation studies have concentrated on R&D departments, so valuable ideas of employees whose jobs are not related to innovation are often ignored. It is therefore significant for managers to break the scope of job position and to encourage innovative behavior. This study considered innovative behavior as a multi-stage factor, so managers can inspire their subordinates by starting with idea generation, such as searching out new ideas or methods for processing improvement and original solutions. Then, managers should give support for those new ideas, and finally transform those innovative ideas. In the meanwhile, to encourage employees to be innovative, it is also important to let them believe that doing so will benefit their work. Therefore, managers should offer positive social recognition for those innovative employees and enhance their self-recognition of innovation. By encouraging employees to be innovative while working, it will help more efficient use of all resources. In addition, employees' innovative behavior promotes teamwork and problem solving, so that a firm's organizational effectiveness can be increased.

5.1.4 Absorptive Capacity and Organizational Effectiveness

The other component of knowledge management capacities is knowledge process capability, which involves knowledge acquiring, conversing, applying, and protecting. Knowledge acquisition is the corporate ability to gather new knowledge (Gold et al., 2001). Knowledge conversion is the procedure of converting captured knowledge to organizational knowledge for a business purpose (Lee & Suh, 2003). Knowledge application is the process to make knowledge more active for a firm in value creation (Mills & Smith, 2011). The last process is knowledge protection which is formulated to preserve corporate knowledge from inappropriate or illegal applications (Gold et al., 2001). The first to the third procedures are in line with the model of absorptive capacity.

According to Zahra and George (2002), potential and realized absorptive capacity construct the absorptive capacity model in a four-dimensional perspective. The first process is knowledge acquisition, which indicates the corporate ability to recognize and gain external knowledge that is valuable to its business. The second process is knowledge assimilation that is related to internal routines and procedures of a firm for the purpose of managing, converting, and understanding the information, ideas, or knowledge. The next process is knowledge transformation, which denotes the ability of a firm to facilitate combining existing, newly acquired, and assimilated knowledge through developing along with refining its routines. The last process is knowledge exploitation, which is a corporate capability depending on the routines of a firm that enables the firm to filter, enlarge, and leverage current capacities, or create new ones. These dimensions are mutually constructed to maintain the internal health of a firm. Besides, the internal health of an organization is also the main attention of the internal process model of organizational effectiveness (Cameron, 1980; Quinn & Rohrbaugh, 1981). Based on the internal process model, Cameron (1980) states that smooth internal functioning and information flowing could enhance organizational effectiveness. Thus, the fourth hypothesis of this study stated that the absorptive capacity of a firm positively impacts organizational effectiveness.

The findings of this study significantly support this hypothesis, so it is important for managers to offer new insights into organizational effectiveness by paying attention to the absorptive capacity of a firm. Companies should be receptive

to external knowledge for the purpose of transforming this new knowledge, and in turn, creating value from it. Moreover, the four processes of absorptive capacity are mutually constructed, so a firm needs to provide a balanced development of these processes in order to positively affect the firm's performance in dynamic environments. To strategically develop a firm's absorptive capacity brings opportunities for attaining and sustaining a competitive advantage in the business environment. On one hand, enhancing the absorptive capability may lead organizations to adopt new or complementary mechanisms and procedures to make internal working more flexible; for example, managers may update and develop policies according to the variation of the external business environment to help, train, and prepare new employees. On the other hand, it is challenging for a firm's competitors to duplicate four learning processes since they are less obvious than an individual process (Song, Droge, Hanvanich, & Calantone, 2005).

5.1.5 The Moderating Effects of Social Capital

Based on the social capital theory, social capital is the tangible and intangible resources that are rationally utilized by organizations (Zheng et al., 2017). For the sake of various research purposes, there are various definitions of social capital proposed by scholars (Adler & Kwon, 2002; Bontis et al., 1999; Bourdieu, 1986; Coleman, 1990). However, this study focuses on the macro-level of social capital, which concerns the possession of social capital by a group, an organization, a society, or a community of a country (Brown et al., 2000). Leana III and Van Buren (1999) mention that organizational social capital indicates both natural and collective form of relationships between organizational members. It involves three dimensions: structural, relational, and cognitive dimensions (Nahapiet & Ghoshal, 1998; Upadhyayula & Kumar, 2004). The relational dimension captures the quality of networks, such as the levels of collective trust among organizational members (Leana III & Van Buren, 1999). Organizations with a high degree of social capital present a high extent of trust between employees and their organization. Trust is important in an organization to allow necessary flows and exchanges of information and knowledge throughout the organization (Pieterse et al., 2010). By working in a trustful environment, organizational members are more likely to engage in collective

activities and cooperation because individuals are willing to help each other and cooperate for the same goal (Bolino et al., 2002; Sahin, 2010), because they believe that their conversation member will not exploit this relationship for his or her own benefit. Thus, trusting relations facilitate cooperative and collective behaviors of employees even in the absence of obvious mechanisms to motivate and support those behaviors (Onyx & Bullen, 2000). Social capital, therefore, enables fostering the internal, knowledge creation, innovation, and creativity of a firm (Leana & Pil, 2006; Maurer, Bartsch, & Ebers, 2011). In addition to trust, identification and reciprocity are other normative social relations to encourage employees to participate in collective actions that enhance performance (Moran, 2005).

Martins and Terblanche (2003) point out that employees' innovative behavior is supported and developed through social network members in a workplace who are embedded within the shared values, systems, and beliefs of the organization. Organizations with a greater degree of social capital show a high level of goal congruence (Zheng et al., 2017). The cognitive dimension of social capital represents the extent of similarity in understanding among network members, which includes shared values, explanations, expositions, and systems of meaning (Nahapiet & Ghoshal, 1998). When employees hold the same thought towards the present and future goals of their organization, they have more motivation to work. As targets align, employees are more loyal to their organization, and more willing to spend their time and effort in searching for new methods to survive in the dynamic context. Thus, this study proposes that the positive influence of intellectual capital on employees' innovative behavior in the workplace will be increased when organizations possess a greater extent of social capital.

Social capital fosters information and knowledge flow throughout an organization (Leana III & Van Buren, 1999), so a firm with a greater level of social capital can increase the absorptive capacity of a firm. The absorptive capacity requires that knowledge flows between internal and external edges of the organization, because every component is executed by dissimilar actors in various organizational parts (Aribi & Dupouët, 2015). In addition, to better absorb acquired information and knowledge, social capital is also meaningful in boosting the understanding of those resources due to it offering a shared code among members of a network (Upadhyayula

& Kumar, 2004). Therefore, this study states that the positive influence of intellectual capital on the absorptive capacity of a firm will be improved when organizations possess a greater extent of social capital.

Based on this study, in the listed companies of the service industry, our findings significantly support social capital as a moderator by combining with intellectual capital to facilitate employees' innovative behavior in the workplace and the absorptive capacity of a firm. This is an important guide for managers. On one hand, the structural dimension and relational dimension of social capital indicate that it is important for managers to build and remain good relationships among organizational members, because a trusting environment allows knowledge and information to flow throughout the organization as well as allows employees to share their ideas without doubt. To create a trusting environment in the workplace, managers should maintain close social relationships with some members, communicate frequently with subordinates, and also know some members on a personal level. On the other hand, the cognitive dimension of social capital discloses that a shared language and vision are vital in a firm as well. A firm is constructed by various departments, so there are general words for the group of specific words or meanings referring to particular fields. For instance, employees from accounting or financial departments should understand the words or abbreviations such as balance sheet (BS), cash flow (CF), fixed expenses (FE), variable expenses (VE), and so on; employees from human resource departments should know the meaning of behavioral competency, balanced scorecard, broad banding, etc., and what that language means in the firm they work at. Thus, managers should train and encourage organizational members to apply common terminology when sharing information to avoid misunderstanding occurring frequently. In the meanwhile, organizations need to build a clear vision, in order to foster goal congruence among employees, and in turn, employees are able to work together to accomplish a strategy.

Overall, the findings generally supported the conceptual model, which was deeply rooted in the theoretical foundations of the resource-based theory, absorptive capacity theory, and social capital theory, as well as the organizational effectiveness framework of Gold et al. (2001). The study was able to sufficiently and particularly evaluate the knowledge management capabilities by concentrating on innovative

behavior and absorptive capacity in an organization; the results are significant in illustrating that the two factors, innovative behavior and absorptive capacity, can measure the factor of knowledge management capabilities in greater detail, and thus enhance the organizational effectiveness in a firm. Additionally, the study shows that intellectual capital is a vital factor that helps to improve innovative behavior and absorptive capacity. More importantly, the study was able to adequately capture the moderating effects of social capital in the model; the results are an important step in demonstrating the different results under the impacts of intellectual capital by having different degrees of social capital in the organizations.

5.2 Implications

Based on the absorptive capacity theory, resource-based theory, and social capital theory, this study formulated and tested a model to illustrate how intellectual capital positively affects employees' innovative behavior in the workplace and the absorptive capacity of a firm, and their impact on organizational effectiveness. Furthermore, social capital moderated the positive relationships of intellectual capital with innovative behavior and absorptive capacity. The results extend the understanding of knowledge management capabilities impact on organizational effectiveness in an organization (Gold et al., 2001). More importantly, the findings of this study shed light on the importance of intangible assets in the dynamic business environment, especially for service-oriented listed companies in Thailand. Based on these results, some important theoretical and practical implications can be drawn.

5.2.1 Theoretical Implications

There are several theoretical implications that can be drawn from this study. First, Gold et al. (2001) posited that knowledge management capabilities are the determinants to improve organizational effectiveness. To have a more fundamental understanding on the impact of knowledge management capabilities of a firm on its organizational effectiveness, this study concentrated on a more detailed evaluation as Mills and Smith (2011) pointed out. The findings that both innovative behavior and absorptive capacity impact organizational effectiveness not only extends the work of

Gold et al. (2001), but also supports the study of Mills and Smith (2011). Although experienced and meaningful works have empirically investigated knowledge management in a decomposed view with organizational performance (Kim et al., 2013; Pérez-López & Alegre, 2012), to our knowledge, this is the first study to demonstrate positive relationships between employees' innovative behavior in the workplace and the absorptive capacity of a firm with a firm's organizational effectiveness. In sum, the present study complements and extends the framework of Gold et al. (2001) by identifying innovative behavior and absorptive capacity as determinants that can be alternative factors for knowledge infrastructure capability and knowledge process capability to impact the organizational effectiveness of a firm.

Second, the direct links between intellectual capital, absorptive capacity, and organizational effectiveness indicate that the knowledge and experience of organizational members are valuable resources for a firm to improve its absorptive capacity, and finally result in the firm's organizational effectiveness. These results lend empirical support for the absorptive capacity theory (Cohen & Levinthal, 1990; Zahra & George, 2002), that states knowledge sources and experience significantly affect the absorptive capacity of a firm and then benefit organizational competitive advantages such as strategic flexibility. By emphasizing the importance of absorptive capacity, this study examined the relationship between absorptive capacity and organizational effectiveness, because researches were relatively limited in scope, largely examining only the effects of absorptive capacity on innovation performance (Lichtenthaler, 2009; Soo et al., 2017; Yan et al., 2002), or competitive advantage (Liao et al., 2007). It is essential to analyze whether increased absorptive capacity has results on another performance of an organization. The model of the current study refined the absorptive capacity model posited by Zahra and George (2002) and was tested on listed companies in the service industry under the Asian context. It identifies knowledge from both internal and external sources support the absorptive capacity of a firm. For a firm to utilize its knowledge, it must perceive the existence as well as the value of the knowledge. The results indicate that the expertise and experience of organizational members as well as external information received from suppliers and customers are important for the recognition of the knowledge. This also supports the

absorptive capacity theory that suggests knowledge sources and experience are antecedents for the organizational absorptive capacity.

Next, the path of intellectual capital to innovative behavior in the workplace is based on the resource-based theory. Most studies state that intellectual materials are grounded in the resource-based theory, and resource-based theory is equally relevant for understanding intellectual capital (Hsu & Wang, 2012; Reed et al., 2006). The findings in this study support that resource-based theory not only worked as a main theoretical foundation in the scholarly literature (Rouse & Daellenbach, 2002), but also noticeably featured in the field of strategic management by the assumption that valuable, rare, inimitable, non-substitutable resource, capabilities, and core competencies can contribute to a firm's acquiring and sustaining performance (Barney, 1991; Eisenhardt & Schoonhoven, 1996; Newbert, 2007). In addition, since the resource-based theory is seen as a static theory (Priem & Butler, 2001), the results extend the understanding of resource-based theory by addressing a fundamental issue of how potential or realized resources can be created and accumulated for firms in the dynamic business environment, which is consistent with the study of Hsu and Wang (2012), that suggest intellectual capital needs to be focused on dynamic consideration. The finding of the current study was contrary to one result of Scott and Bruce (1994) which found that resource supply was negatively related to innovative behavior.

Lastly, this study contributes to an understanding of the moderating effects and the significance of social capital positively affecting the results of intellectual capital on both employees' innovative behavior in the workplace and the absorptive capacity of a firm. Contrary to studies of Lin and Huang (2005) as well as Zheng et al. (2017), the results in this study found significant evidence to support the interaction terms of intellectual capital and social capital. From a theoretical perspective, the results of the study imply that the moderating effects are stronger in an organization with a highly social capital environment than in an environment with a little or a small amount of social capital. In other words, a firm well equipped with social resources better succeeds in attaining their goals. The results reinforce the point of view at the macro-level of social capital. Putnam (1993) states that trust, norm, networks and other characteristics of social capital existing in an organization enable coordinating actions in a team for enhancing efficiency. Wu and Shi (2009) mention that social

capital at the macro-level can improve the abilities of groups to reach resources, promote communication, and strengthen internal cohesion in the collective networks. By applying the scale development of the model posited by Nahapiet and Ghoshal (1998), the results provide evidence to support the social capital theory, that social capital can influence the degree of interpersonal knowledge sharing.

5.2.2 Practical Implications

This study also led to numerous practical contributions that some strategic actions could be built on the research findings, especially in the listed companies of the service industry.

5.2.2.1 Human Capital Enhancement

The current study discloses that intellectual capital is a crucial source for a firm to upgrade its internal abilities, which should be accumulated by enhancing corporate human capital, structural capital, and customer capital. This is an encouraging result because it implies that managers – in regards to the service industry – must realize the full potential of their organization's intellectual capital for the purpose of building strong knowledge management capabilities, specified as innovative behavior and absorptive capacity, for their organizations. In service-oriented companies, they do not produce tangible outputs as manufacturers do. Personnel is the key factor to control corporate performance as well as a "product" for customers. Therefore, human capital is the core component of intellectual capital (Chen et al., 2004), so managers should hire knowledgeable or skillful employees initially. Organizations may need to revise recruitment processes in order to hire employees with high proficiency. Managers could have a look at the curriculum vitae which can reflect individual knowledge background; besides, the firm could provide an aptitude test to evaluate individual emotional quotient. Then managers will have a sufficient understanding of interviewees and consider if the person fits the position. It not only helps managers to put the right man on the right job, but also lets employees work with a positive attitude since they can feel that they play a role in the firm, eventually promoting their performance. However, it is not easy to hire the right person for companies sometimes, so managers should have a long-term training plan to strengthen employees, especially in the service industry. Different from

manufacturers, service companies do not have tangible commodities to present to their customers, so their organizational performance can not be increased by producing a better product. Services can improve their performance by strengthening the skills of their employees, since trained employees can improve their competencies and turn to work more effectively. In addition, managers of service-oriented companies should have reliable and consistent performance appraisals to review the performance of their employees regularly because employees' performance is an intangible output. Lastly, managers should complete their performance appraisals with an emphasis on the strengths of an employee rather than weaknesses. Managers from manufacturing companies can emphasize the weaknesses of a product in order to complement those drawbacks for the purpose of creating a better one for customers. However, managers from services can not emphasize employees' faults or weaknesses since this behavior may demotivate employees in the workplace. Therefore, highlighting employees' strengths is important since employees can optimize their performance when they are taught to leverage their strengths, an in turn, an organization can maximize its human capital.

5.2.2.2 Organizational Structure Improvement

When a business struggles, managers should not only inspect problems of subordinates, but also check if the organization's policies, norms, or structures prevent the execution of business. For instance, mature firms have lower absorptive capacity than young firms because they are affected by organizational inertia. Service companies are largely based on intangible resources, so they rely on employees' innovative behavior and the absorptive capacity of the firm to utilize those intangible resources. Organizational structure is a non-human asset of a firm, and it is the place where companies store their intellectual material. Even though a hierarchical organizational structure works well for large companies, it may prevent business to be effectively performed sometimes because it creates communication barriers and causes a lack of collaboration. To revise or improve the organizational structure, leaders should consider shifting the focus from hierarchy to community, that is, to connect employees to one another. The working environment as a community can empower employees and enhance their sense of belonging, connection, and security. People are motivated to work when they feel a sense of security.

5.2.2.3 Reputation Creation and Maintenance

The intangible assets can be accumulated from corporate reputation and relationships with customers and suppliers. A firm's reputation is one of the most important assets for a firm (Hess, 2008). Thus, firms should carefully build and maintain their reputation since it is essential for corporate success in the service industry. The service companies are not like others which could gain a reputation from a good tangible product, they are easier to lose their customers than manufacturers. Thus, reputation is more important in services. Reputation can be improved both internally and externally. From an internal perspective, people would like to trust information related to a company from an employee of that company, because they believe that the one who actually works in the company will know better. Thus, managers should try to stop the rumor once it occurred. Besides, remarkable customer experience and long-term relations with suppliers will encourage people to spread the word. To generate a reputation from both customers and suppliers, managers should train and retain employees to assist customers with a sale, problem, or query, and to keep a commitment with suppliers for long-term cooperation. Based on an external perspective, to improve corporate social responsibility (CSR) can positively affect an organization's reputation, especially for public companies. Organizations should attempt to give something back at local levels to support worthy causes, such as helping charitable causes.

5.2.2.4 Build-up Innovative Behavior

This study supports the claim that employees' innovative behavior in the workplace facilitates a firm's organizational effectiveness. Thus, firms should put an emphasis on their employees' innovative behavior. Innovation is a key component to achieve a firm's competitive advantages in a service-oriented company. Service companies are more difficult to innovate than other companies, because they do not produce tangible products. Therefore, they need to be innovative in procedures, methods, skills etc. in terms of improving a firm's organizational effectiveness. Since innovative behavior is the antecedent of organizational innovation, innovative behavior is also important in service-oriented companies. Managers may look for employees with different perspectives or come from diverse backgrounds. Having employees with an alternative set of ideas and problem-solving methods will make

employees easily generate innovative behavior. Organizations need to be open and approachable to new ideas. Thus, managers should provide support, arrange meetings, set up suggestion boxes, and dedicate time to encourage employees to share new ideas. Even if the idea is not executed, there should be rewards for individuals or even teams to appreciate their efforts to improve the business. In addition, offering training to employees can inspire new thoughts and approaches to their work since they will gain additional experience. Managers may also develop cross-functional teams, that is employees from different parts of the organization, to brainstorm improvements to processes, and to foster new perspectives from different employees. Where possible, managers should implement employees' ideas and suggestions quickly. When employees see they are involved in a decision and influencing the direction of their organization, they will be extremely motivated to continue to share ideas.

5.2.2.5 Trust Building

Due to social capital playing a moderating role in the impact of intellectual capital on both employees' innovative behavior in the workplace and organizational absorptive capacity, managers should emphasize the relationship of organizational members. Trusting relations could promote social exchange and build a sense of belonging between members, which is an essential factor in serviced-oriented organizations. Thus, it is important for a manager to build a trusting atmosphere among members. To build trusting relations with subordinates, managers should show support and understanding for their team members, even when mistakes are made. The firm or managers should be honest with employees, and admit when the company makes mistakes, or when a manager personally makes a mistake. In addition to admitting mistakes, organizations should be visible to their employees. It means managers or an organization should let employees know about organization's plans, priorities, challenges, and opportunities, so that they will be clear into the future. In addition, employees should be offered a shared sense of ownership in corporate goals and missions for the purpose of encouraging their sense of voice and significance. Thus, firms may encourage communication among peers and between subordinates and leaders.

5.2.2.6 Social Relationship Establishment

Social relationships established among managers and their subordinates could enhance more efficient methods for disseminating information, especially through informal channels. The utilization of such informal channels provides comparative and evaluative information for managers to improve performance with advantages (Karlsson & Lukka, 2010; Nahapiet & Ghoshal, 1998; Sahin, 2010). In fact, there is some information that can not be passed through formal channels and therefore requires informal channels. An informal channel gives subordinates a better opportunity to raise their opinions freely; besides, the urgent nature of such networks allows information to flow quickly. With the advantages of informal communication, managers are able to understand problems, conflicts, and complaints, so they can take necessary actions timely and effectively. To establish the informal channels, the first step is to build up relationships among managers and subordinates. Firstly, managers should be open, that is, managers may share their likes and dislikes as well as expectations of their subordinates; likewise, managers should also seek awareness of subordinates' expectations. Moreover, managers may demonstrate that they are open to receiving feedback from subordinates and would act upon the received feedback. Secondly, managers should treat subordinates with respect, such as remembering their names, acknowledging their existence, appreciating their excellent work, and providing feedback privately when there is a need for improvement. Next, it is meaningful when a manager shares credits for accomplishments, ideas, and contributions, because the results come from teamwork, and they deserve as much credit as a manager does in any outcomes that a group or department achieves. Lastly, as a manager, it is necessary to help subordinates succeed. Managers should provide clear direction and ensure their subordinates understand it. Then, always have conversations with subordinates for continuous improvement of performance. Gradually, mutually establish methods to measure success.

5.2.27 Common Language Adoption

Tsai and Ghoshal (1998) mentioned that social capital may promote the improvement of common understanding among employees and yield a better outcome. One reason is the utilization of common language throughout a firm. A

common language enables organizational members to minimize misunderstanding, so time spent on correcting errors can be shifted to business. For instance, in the medical services companies like hospitals, medicines, medical equipment or even symptoms may be called differently according to different doctors or nurses. It is easy to have a misunderstanding while communicating and even cause worse consequences. Similar to other service-oriented companies, they do not give a name for a tangible product but an intangible output, so members should know the language for those outputs. Thus, managers should coach and mentor members for mastering the corporate terminology used since the first day of new employees joining the organization. Corporate terminology includes the names of functions, titles and organizational units, internal abbreviations, project names, etc. When managers and subordinates speak the same language, there will be a sense of culture and a sense of identity and belonging for those working within the organization, which is a significant factor in a firm's success. To promote common language in a firm, managers should firstly provide an explanation for corporate terminology during the onboarding process and encourage team members to use a common language. Besides, managers should identify points of miscommunication and learn from mistakes. Lastly, it is also important for a firm to adopt language that is commonly used in the industry for improving communication with other firms.

5.3 Conclusion

This quantitative study brings significant contributions to the literature and implications for practitioners. First, the investigation of intellectual capital and absorptive capacity makes important contributions to the literature of knowledge management, a field which still needs more accumulation of theoretical development and empirical studies; the concepts of intellectual capital, absorptive capacity, and knowledge management have most often been discussed in Western or developed countries. In this sense, intellectual capital research has to a large extent focused on organizations in the Western context. By empirically testing a theoretical model of intellectual capital in a developing country, this study contributes to the intellectual capital literature, which has a limited number of empirical studies on the Eastern

context and developing countries. Moreover, by exploring the relationship between intellectual capital and absorptive capacity, this study also contributes to both absorptive capacity and knowledge management literature, which are fields that are still largely underdeveloped.

Second, by utilizing a more detailed evaluation of knowledge management capabilities, this study makes an empirical contribution to knowledge management and organizational effectiveness research. The majority of organizational effectiveness studies have examined the knowledge infrastructure capability and knowledge process capability proposed by Gold et al. (2001); however, this study empirically demonstrated that the concepts of innovative behavior and absorptive capacity can greatly develop organizational effectiveness. Therefore, this study's empirical testing and confirmation of the correlation among innovative behavior, absorptive capacity, and organizational effectiveness can be considered another contribution.

Third, this study empirically examines the model in the service industry, an area rarely addressed in the intellectual capital and organizational effectiveness literature. By testing the associations between intellectual capital, social capital, and two determinants of organizational effectiveness, this study also makes a contribution to service-oriented research. As mentioned earlier, the literature looking closely to explain the situation of intellectual capital in the service industry is limited. By investigating the model within the listed companies in the service industry, this study provides important insights to companies in the services industry.

Next, by using data across companies to test the model, this study makes a significant contribution to generalization. The majority of intellectual capital or organizational effectiveness studies have been largely based on the study of single firms, case studies, or small groups of firms. By empirically testing the model across companies, the study provides significant evidence that the model can be applied and measured in similar types of firms.

Finally, the current study has practical implications for organizational managers and employees for the development of an organization. The study results indicated the significance of intellectual capital, employees' innovative behavior, the absorptive capacity of a firm, and social capital among an organization in terms of the

effectiveness of listed companies. It summarizes that the increase of intellectual capital could bring the increase of both innovative behavior and absorptive capacity, and eventually results in organizational effectiveness. The managers should effectively manage organizational intangible assets by recognizing and utilizing those resources to reach organizational effectiveness to a higher extent. Therefore, this study may also benefit managers, particularly those who work in a service-oriented company.

5.4 Limitation

In spite of the results attained herein being interesting and convincing, there are some limitations that need to be considered. Firstly, the study investigated factors of intellectual capital, social capital, innovative behavior, and absorptive capacity as a one-dimensional concept, which may be a limitation for the study. Even though investigating these factors as one-dimensional can explain the correlations among factors, it is not able to analyze the inter-relationships among multiple variables in a model in order to have a more detailed perspective. By looking at each facet of the variables, each dimension can be analyzed separately, so that allows researchers to have a more detailed investigation. Secondly, there are many other factors that could have effects on organizational effectiveness which were not considered in this study. Though innovative behavior and absorptive capacity covered most of the facets of knowledge infrastructure capability and knowledge process capability, there were two facets of technology and protection that were not included, which may be important for knowledge management capabilities, and then have better development on organizational effectiveness. Next, the measure of organizational effectiveness may be another important limitation, which was based on the perceptions of the managers rather than on objective performance data. Managers' perceptions of effectiveness may not reflect the actual effectiveness and performance of an organization. Self-evaluated questionnaires as a measurement are often questioned when it comes to validity (Sahin, 2010). Due to objective performance offering a less biased measurement (Kim & Malhotra, 2005), the study might use the data of objective performance along with self-evaluated data. In addition to perceptual limitation,

organizational effectiveness is a broad concept, and a number of possible factors are able to have effects on it according to the context. Some individual and organizational factors that might influence organizational effectiveness were involved as control variables in this study. Nonetheless, other factors that have effects on organizational effectiveness may exist that were not included. It is vital to consider this limitation when drawing some conclusions based on the study results. Lastly, the data used in this research is cross-sectional data due to the time limitation of the study. Cross-sectional analysis can explain the construct of the particular group at a given point in time; however, it is not able to look over an extended period. For instance, the extent of organizational effectiveness in an organization may be different at different points in time. Therefore, this model may need more research and may be modified for further research.

5.5 Recommendation for Future Research

The limitation of the study offered some ideas for future research. The organizational effectiveness measurement was based on the perspectives of managers in service-oriented firms. As discussed in the previous part, to improve the validity of the measurement, future studies should analyze the perspective data along with objective performance data to measure organizational effectiveness. Besides, this study adapted the framework of Gold et al. (2001) to measure the variable of organizational effectiveness. Since there are some other models to apply, such as the system resource model Yuchtman and Seashore (1967), the strategic constituencies model (Shilbury & Moore, 2006), future research could investigate the organizational effectiveness of the service-oriented firms by applying different models according to various perspectives.

This study investigated the listed service-oriented companies in the Thai context along with an adequate sample size, on one hand, so future research could apply this model in the service industry in different developing countries, such as in China, for providing more stable outputs. On the other hand, future research could adapt this model for other industry sectors under the Thai context.

This study considered the social capital variable as a moderating effect in the model. The correlation results of social capital on other factors may produce research questions for future studies that will consider social capital as an independent variable to have effects on other variables. In addition, future research can investigate the other levels of social capital in the organization to have a more complicated output. Moreover, Hofstede (2011) suggested that people behave differently under different cultures. Thus, cultural differences should be considered when testing the model. Future studies could compare the outcomes by including organizations from various national cultures.

Lastly, ordinary least square regression analysis and hierarchy multiple regression analysis were used to analyze the conceptual model and moderating effect of social capital in this study. To solve the limitation of a one-dimensional concept as mentioned earlier, future research could use the structural equation modeling method to analyze the inter-relationship between different dimensions of variables to generate a more accurate and precise estimation in making predictions and interpretations.

BIBLIOGRAPHY

Abdolmohammadi, M. J. (2005). Intellectual capital disclosure and market capitalization. *Journal of Intellectual Capital*, *6*(3), 397-416.

Adler, P. S., & Kwon, S.-W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, *27*(1), 17-40.

Ahonen, G. (2000). Generative and commercially exploitable intangible assets. In *Classification of intangibles* (pp. 206-213). Paris: HEC School of Management.

Ahuja, G., & Katila, R. (2001). Technological acquisitions and the innovation performance of acquiring firms: A longitudinal study. *Strategic Management Journal, 22*(3), 197-220.

Al-Shammari, B., Brown, P., & Tarca, A. (2008). An investigation of compliance with international accounting standards by listed companies in the Gulf Co-Operation Council member states. *The International Journal of Accounting, 43*(4), 425-447.

Amabile, T. M. (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior, 10*(1), 123-167.

Åmo, B. W., & Kolvereid, L. (2005). Organizational strategy, individual personality and innovation behavior. *Journal of Enterprising Culture, 13*(1), 7-19.

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

Andreeva, T., & Kianto, A. (2011). Knowledge processes, knowledge-intensity and innovation: A moderated mediation analysis. *Journal of Knowledge Management, 15*(6), 1016-1034.

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

Antonelli, C. (1999). The evolution of the industrial organisation of the production of knowledge. *Cambridge Journal of Economics, 23*(2), 243-260.

Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes, 82*(1), 150-169.

Aribi, A., & Dupouët, O. (2015). The role of organizational and social capital in the firm's absorptive capacity. *Journal of Knowledge Management, 19*(5), 987-1006. doi:10.1108/jkm-05-2015-0169

Arrighetti, A., Landini, F., & Lasagni, A. (2014). Intangible assets and firm heterogeneity: Evidence from Italy. *Research Policy, 43*(1), 202-213.

Azer, I., Hamzah, H. C., Mohamad, S. A., & Abdullah, H. (2016). *Contribution of economic sectors to Malaysian GDP*. Paper presented at the Regional Conference on Science, Technology and Social Sciences (RCSTSS 2014), Universiti Teknologi MARA Pahang, Malaysia.

Baker, W. E. (1990). Market networks and corporate behavior. *American Journal of Sociology, 96*(3), 589-625.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Strategic Management 17*(1), 203-227.

Barney, J. B., & Clark, D. N. (2007). *Resource-based theory: Creating and sustaining competitive advantage*. United States: Oxford University Press.

Bassi, L. J., & Van Buren, M. E. (1999). Valuing investments in intellectual capital. *International Journal of Technology Management, 18*(5), 414-432.

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis with special reference to education*. New York: Columbia University Press.

Becker, W., & Peters, J. (2000). Technological opportunities, absorptive capacities, and innovation. *Discussion Paper Series, 195*(1), 1-38.

Bell, D. (1976). The coming of the post-industrial society. *The Educational Forum, 40*(4), 574-579.

Bertrand, M., & Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *The Quarterly Journal of Economics, 118*(4), 1169-1208.

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

Bian, Y., & Qiu, H. (2000). The social capital of enterprises and its efficiency. *Social Sciences in China, 2*(2), 87-99.

Boisot, M., & Griffiths, D. (1999). Possession is nine tenths of the law: Managing a

firm's knowledge base in a regime of weak appropriability. *International Journal of Technology Management, 17*(6), 662-676.

Boland, N. (2019). *Transfer pricing and the pharmaceutical industry: Finding a coherent approach to valuing difficult-to-value intangible assets.* National College of Ireland, Dublin.

Bolino, M. C., Turnley, W. H., & Bloodgood, J. M. (2002). Citizenship behavior and the creation of social capital in organizations. *Academy of Management Review, 27*(4), 505-522.

Bontis, N. (1998). Intellectual capital: An exploratory study that develops measures and models. *Management Decision, 36*(2), 63-76.

Bontis, N. (2001). Assessing knowledge assets: A review of the models used to measure intellectual capital. *International Journal of Management Reviews, 3*(1), 41-60.

Bontis, N., Crossan, M. M., & Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies, 39*(4), 437-469.

Bontis, N., Dragonetti, N. C., Jacobsen, K., & Roos, G. (1999). The knowledge toolbox: A review of the tools available to measure and manage intangible resources. *European Management Journal, 17*(4), 391-402.

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

Bouncken, R. B. (2002). Knowledge management for quality improvements in hotels. *Journal of Quality Assurance in Hospitality & Tourism, 3*(3-4), 25-59.

Bourdieu, P. (1986). The forms of capital. In *Handbook of theory and research for the sociology of education* (Richardson, John G. ed., pp. 241-258). New York: Greenwood: Westport, CT.

Bowen, J., & Ford, R. C. (2002). Managing service organizations: Does having a "thing" make a difference? *Journal of Management, 28*(3), 447-469.

Boyt, T., & Harvey, M. (1997). Classification of industrial services: A model with strategic implications. *Industrial Marketing Management, 26*(4), 291-300.

Brooking, A. (1996). *Intellectual capital, core asset for the third millennium enterprise*.

London: Thompson International Business Press.

Brooking, A. (1997). The management of intellectual capital. *Long Range Planning, 3*(30), 364-365.

Brown, A., Coote, J., & Gosden, C. (2000). Tylor's tongue: Material culture, evidence and social networks. *Journal of the Anthropological Society of Oxford, 31*(3), 257-276.

Bryman, A. (1989). *Research methods and organization studies*. USA: Routledge.

Burgelman, R. A. (1983). A process model of internal corporate venturing in the diversified major firm. *Administrative Science Quarterly, 28*(2), 223-244.

Burt, R. S. (1992). *Structural holes: The social structural of competition*. Cambridge, MA.: Cambridge University Press.

Burt, R. S. (1997). The contingent value of social capital. *Administrative Science Quarterly, 42*(2), 339-365.

Buzzacchi, L., Colombo, M. G., & Mariotti, S. (1995). Technological regimes and innovation in services: The case of the Italian banking industry. *Research Policy, 24*(1), 151-168.

Cabello-Medina, C., López-Cabrales, Á., & Valle-Cabrera, R. (2011). Leveraging the innovative performance of human capital through HRM and social capital in Spanish firms. *The International Journal of Human Resource Management, 22*(4), 807-828.

Cameron, K. (1980). Critical questions in assessing organizational effectiveness. *Organizational Dynamics, 9*(2), 66-80.

Cameron, K. (1986). A study of organizational effectiveness and its predictors. *Management Science, 32*(1), 87-112.

Cameron, K. S., & Whetten, D. A. (1983). Organizational effectiveness: one model or several? In *Organizational effectiveness* (pp. 1-24). New York: Academic Press.

Campbell, D., & Rahman, M. R. A. (2010). A longitudinal examination of intellectual capital reporting in Marks & Spencer annual reports, 1978–2008. *The British Accounting Review, 42*(1), 56-70.

Canibano, L., García-Ayuso, M., Sánchez, P., & Olea, M. (1999). *Measuring intangibles to understand and improve innovation management: Preliminary*

results. Paper presented at the Measuring and reporting intellectual capital: Experiences, issues and prospects, Amsterdam.

Carmeli, A., Meitar, R., & Weisberg, J. (2006). Self-leadership skills and innovative behavior at work. *International Journal of Manpower, 27*(1), 75-90.

Cassol, A., Gonçalo, C. R., & Ruas, R. L. (2016). Redefining the relationship between intellectual capital and innovation: The mediating role of absorptive capacity. *BAR-Brazilian Administration Review, 13*(4), 1-25.

Cefis, E., & Marsili, O. (2006). Survivor: The role of innovation in firms' survival. *Research Policy, 35*(5), 626-641.

Chang, S., Gong, Y., Way, S. A., & Jia, L. (2013). Flexibility-oriented HRM systems, absorptive capacity, and market responsiveness and firm innovativeness. *Journal of Management, 39*(7), 1924-1951.

Chelladurai, P., & Haggerty, T. R. (1991). Measures of organizational effectiveness of Canadian national sport organizations. *Canadian Journal of Sport Sciences= Journal Canadien Des Sciences Du Sport, 16*(2), 126-133.

Chen, J., Jiang, Z., & Chen, Y. (2011). The influencing factors of absorptive capacity under the paradigm of open innovation. *Journal of Zhejiang University (Humanities and Social Sciences), 41*(5), 1-12.

Chen, J., Zhu, Z., & Xie, H. Y. (2004). Measuring intellectual capital: A new model and empirical study. *Journal of Intellectual Capital, 5*(1), 195-212.

Chen, S., Wu, M., & Chen, C. (2010). Employee's personality traits, work motivation and innovative behavior in marine tourism industry. *Journal of Service Science and Management, 3*(2), 198-205.

Chesbrough, H. W., & Teece, D. J. (1998). When is virtual virtuous? Organizing for innovation. In D. A. Klein (Ed.), *The strategic management of intellectual capital* (pp. 27-37). Boston: Butterworth-Heinemann.

Chi, H.-K., Lan, C.-H., & Dorjgotov, B. (2012). The moderating effect of transformational leadership on knowledge management and organizational effectiveness. *Social Behavior and Personality: An International Journal, 40*(6), 1015-1023.

Child, J. (2001). Trust-the fundamental bond in global collaboration. *Organizational*

Dynamics, 29(4), 274-288.

Chiu, C., Hsu, M., & Wang, E. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems, 42*(3), 1872-1888.

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

Christensen, C. M., Suárez, F. F., & Utterback, J. M. (1998). Strategies for survival in fast-changing industries. *Management Science, 44*(12), S207-S220.

Chudzikowski, K., Fink, G., Mayrhofer, W., & Migliore, L. A. (2011). Relation between big five personality traits and Hofstede's cultural dimensions. *Cross Cultural Management: An International Journal, 18*(1), 38-54.

Cingöz, A., & Akdoğan, A. A. (2011). An empirical examination of performance and image outcome expectation as determinants of innovative behavior in the workplace. *Procedia - Social and Behavioral Sciences, 24*(7), 847-853. doi:10.1016/j.sbspro.2011.09.099

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences*. United States: Lawrence Erlbaum Associates.

Cohen, W. M., & Levinthal, D. A. (1989). Innovation and learning: The two faces of R & D. *The Economic Journal, 99*(397), 569-596.

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

Cohen, W. M., & Levinthal, D. A. (1994). Fortune favors the prepared firm. *Management Science, 40*(2), 227-251.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95-S120. doi:10.1086/228943

Coleman, J. S. (1990). *Foundations of social theory*. Cambridge: Harvard University Press.

Conner, K. R., & Prahalad, C. (1996). A resource-based theory of the firm: Knowledge versus opportunism. *Organization Science, 7*(5), 477-501.

Connolly, T., Conlon, E. J., & Deutsch, S. J. (1980). Organizational effectiveness: A

multiple-constituency approach. *Academy of Management Review, 5*(2), 211-218.

Cook, P. (1998). The creativity advantage-is your organization the leader of the pack? *Industrial and Commercial Training, 30*(5), 179-184.

Cooper, C. (2006). Knowledge management and tourism. *Annals of Tourism Research, 33*(1), 47-64.

Corrado, C., Haskel, J., Jona-Lasinio, C., & Iommi, M. (2018). Intangible investment in the EU and US before and since the Great Recession and its contribution to productivity growth. *Journal of Infrastructure, Policy and Development, 2*(1), 11-36.

Cunningham, J. B. (1977). Approaches to the evaluation of organizational effectiveness. *Academy of Management Review, 2*(3), 463-474.

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

Dahiyat, S. E. (2015). An integrated model of knowledge acquisition and innovation: Examining the mediation effects of knowledge integration and knowledge application. *International Journal of Learning and Change, 8*(2), 101-135.

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

Damanpour, F., & Evan, W. M. (1984). Organizational innovation and performance: The problem of "organizational lag". *Administrative Science Quarterly, 29*(3), 392-409.

Damanpour, F., Walker, R. M., & Avellaneda, C. N. (2009). Combinative effects of innovation types and organizational performance: A longitudinal study of service organizations. *Journal of Management Studies, 46*(4), 650-675.

Dang, C., Le-Hoai, L., & Kim, S. (2018). Impact of knowledge enabling factors on organizational effectiveness in construction companies. *Journal of Knowledge Management, 22*(4), 759-780.

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

Davis, J. (2000). *Organizational effectiveness literature review*. Washington, DC: The

Lewin Group for the David and Lucile Packard Foundation.

Delery, J., & Gupta, N. (2016). Human resource management practices and organizational effectiveness: Internal fit matters. *Journal of Organizational Effectiveness, 3*(2), 139-163.

Demarest, M. (1997). Understanding knowledge management. *Long Range Planning, 30*(3), 321-384.

Diefenbach, T. (2006). Intangible resources: A categorial system of knowledge and other intangible assets. *Journal of Intellectual Capital, 7*(3), 406-420.

Druckman, D., & Rober, A. B. (1991). *In the mind's eye: enhancing human performance.* Washington, DC.: National Academy Press.

Echambadi, R., Campbell, B., & Agarwal, R. (2006). Encouraging best practice in quantitative management research: An incomplete list of opportunities. *Journal of Management Studies, 43*(8), 1801-1820.

Edvinsson, L. (1997). Developing intellectual capital at Skandia. *Long Range Planning, 30*(3), 366-373.

Edvinsson, L., & Malone, M. S. (1997). *Intellectual capital: Realising your company's true value by finding its hidden roots*. New York: Harper Collions Publishers, Inc.

Edvinsson, L., & Sullivan, P. (1996). Developing a model for managing intellectual capital. *European Management Journal, 14*(4), 356-364.

Eisenhardt, K. M., & Schoonhoven, C. B. (1996). Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms. *Organization Science, 7*(2), 136-150.

Erickson, G. S., & Rothberg, H. N. (2015). Knowledge assets in services across industries and across time. *Investigaciones Europeas de Dirección y Economía de la Empresa, 21*(2), 58-64.

Etzioni, A. (1960). Two approaches to organizational analysis: A critique and a suggestion. *Administrative Science Quarterly, 5*(2), 257-278.

Evangelia, T. A. (2006). *Intellectual capital and business performance in an emerging economy: Empirical study of Greek listed companies.* University of Greenwich, London.

Evangelista, R., & Sirilli, G. (1995). Measuring innovation in services. *Research Evaluation, 5*(3), 207-215.

Eydi, H. (2013). Confirmatory factor analysis of the sport organizational effectiveness scale according competing value framework. *Universal Journal of Management, 1*(2), 83-92.

Fandiño, A., Marques, C., Menezes, R., & Bentes, S. (2015). Organizational social capital scale based on Nahapiet and Ghosal model: Development and validation. *Review of Contemporary Business Research, 4*(2), 25-38.

Fernandez, R. M., Castilla, E. J., & Moore, P. (2000). Social capital at work: Networks and employment at a phone center. *American Journal of Sociology, 105*(5), 1288-1356.

Filius, R., de Jong, J. A., & Roelofs, E. C. (2000). Knowledge management in the HRD office: A comparison of three cases. *The Journal of Workplace Learning, 12*(7), 286-295.

Fisher, A. G. (1939). Production, primary, secondary and tertiary. *Economic Record, 15*(1), 24-38.

Flap, H. D. (1988). *Conflict, loyalty, and violence: The effects of social networks on behaviour*. New York: Verlag Peter Lang.

Flatten, T. C., Engelen, A., Zahra, S. A., & Brettel, M. (2011). A measure of absorptive capacity: Scale development and validation. *European Management Journal, 29*(2), 98-116.

Fongtanakit, K. (2013). Social capital, knowledge sharing, and performance in the government savings bank (GSB), Thailand. *Thai Journal of Public Administration, 11*(2), 59-59.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Fosfuri, A., & Tribó, J. A. (2008). Exploring the antecedents of potential absorptive capacity and its impact on innovation performance. *Omega, 36*(2), 173-187.

Fourastié, J. (1951). Productivity and economics. *Political Science Quarterly, 66*(2), 216-225.

Friedlander, F., & Pickle, H. (1968). Components of effectiveness in small organizations. *Administrative Science Quarterly, 13*(2), 289-304.

Fu, G., & Jia, M. (2012). On the reasons for the vexing CSP-CFP relationship: Methodology, control variables, stakeholder groups, and measures: The review of 63 studies from 1990s. *International Journal of Business and Management, 7*(12), 130-137.

Fukuyama, F. (1995). Social capital and the global economy. *Foreign Affairs, 74*(5), 89-103.

Garud, R., & Nayyar, P. R. (1994). Transformative capacity: Continual structuring by intertemporal technology transfer. *Strategic Management Journal, 15*(5), 365-385.

Garwin, D. A. (1993). Building a learning organization. *Harvard business review, 71*(4), 73-91.

George, W. R., & Barksdale, H. C. (1974). Marketing activities in the service industries: An empirical study reveals major differences in the marketing practices of service firms and product firms. *Journal of Marketing, 38*(4), 65-70.

Georgopoulos, B. S., & Tannenbaum, A. S. (1957). A study of organizational effectiveness. *American Sociological Review, 22*(5), 534-540.

Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems, 18*(1), 185-214.

Granovetter, M. (1992). Economic institutions as social constructions: A framework for analysis. *Acta Sociologica, 35*(1), 3-11.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*(S2), 109-122.

Gratton, L., & Ghoshal, S. (2003). Managing personal human capital: New Ethos for the 'Volunteer' employee. *European Management Journal, 21*(1), 1-10.

Gupta, B., Iyer, L. S., Aronson, J. E., Gupta, B., Iyer, L., & Aronson, J. (2000). Knowledge management: Practices and challenges. *Industrial Management and Data Systems, 100*(1), 17-21.

Guthrie, J. (2001). The management, measurement and the reporting of intellectual

capital. *Journal of Intellectual capital, 2*(1), 27-41.

Guthrie, J., & Yongvanich, K. (2004). *Intellectual capital reporting: comparison of various frameworks.* Macquarie Graduate School of Management, Sydney.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis* (Vol. 5). New Jersey: Prentice hall Upper Saddle River.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis. In (Vol. 6). New Jersey: Prentice hall Upper Saddle River.

Hall, R. (1992). The strategic analysis of intangible resources. *Strategic Management Journal, 13*(2), 135-144.

Hallin, C. A., & Marnburg, E. (2008). Knowledge management in the hospitality industry: A review of empirical research. *Tourism Management, 29*(2), 366-381.

Han, J. K., Kim, N., & Srivastava, R. K. (1998). Market orientation and organizational performance: Is innovation a missing link? *Journal of Marketing, 62*(4), 30-45.

Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review, 49*(2), 149-164.

Hanson, J., & Krackhardt, D. (1993). Informal networks: The company behind the chart. *Harvard business review, 71*(4), 104-111.

Harabi, N. (1997). Channels of R&D spillovers: An empirical investigation of Swiss firms. *Technovation, 17*(11-12), 627-635.

Hart, S., & Banbury, C. (1994). How strategy-making processes can make a difference. *Strategic Management Journal, 15*(4), 251-269.

Henri, J.-F. (2004). Performance measurement and organizational effectiveness: Bridging the gap. *Managerial Finance, 30*(6), 93-123.

Herath, S. K. (2007). A framework for management control research. *Journal of Management Development, 26*(9), 895-915.

Herreros, F. (2004). *The problem of forming social capital: Why trust?* America, US: Palgrave Macmillan.

Hess, R. L. (2008). The impact of firm reputation and failure severity on customers' responses to service failures. *Journal of Services Marketing, 22*(5), 385-398.

Hezlett, S. A., & Gibson, S. K. (2007). Linking mentoring and social capital: Implications for career and organization development. *Advances in Developing Human Resources, 9*(3), 384-411.

Hipp, C., & Grupp, H. (2005). Innovation in the service sector: The demand for service-specific innovation measurement concepts and typologies. *Research Policy, 34*(4), 517-535.

Hitt, M. A. (1988). The measuring of organizational effectiveness: Multiple domains and constituencies. *Management International Review, 28*(2), 28-40.

Ho, C. T. (2009). The relationship between knowledge management enablers and performance. *Industrial Management & Data Systems, 109*(1), 98-117.

Hoegl, M., Parboteeah, K. P., & Munson, C. L. (2003). Team-level antecedents of individuals' knowledge networks. *Decision Sciences, 34*(4), 741-770.

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture, 2*(1), 1-26.

Hogan, S. J., & Coote, L. V. (2014). Organizational culture, innovation, and performance: A test of Schein's model. *Journal of Business Research, 67*(8), 1609-1621.

Hong, R., & Wu, X. (2005). Guowai qiye zhili ziben yanjiu shuping [A review on foreign corporate intellectual capital]. *Foreign Economies & Management, 27*(10), 42-48.

Hsu, L. C., & Wang, C. H. (2012). Clarifying the effect of intellectual capital on performance: The mediating role of dynamic capability. *British Journal of Management, 23*(2), 179-205.

Huang, R. (2007). An overview of social capital theory. *Journal of Capital University of Economics and Business, 9*(6), 84-91.

Hudson, W. J. (1993). *Intellectual capital: How to build it, enhance it, use it*. New York: Wiley.

Huergo, E., & Jaumandreu, J. (2004). How does probability of innovation change with firm age? *Small Business Economics, 22*(3-4), 193-207.

Hussi, T. (2004). Reconfiguring knowledge management–combining intellectual capital, intangible assets and knowledge creation. *Journal of Knowledge Management,*

8(2), 36-52. doi:10.1108/13673270410529091

Isaksen, S. G., & Akkermans, H. J. (2011). Creative climate: A leadership lever for innovation. *The Journal of Creative Behavior, 45*(3), 161-187.

Isaksen, S. G., & Ekvall, G. (2010). Managing for innovation: The two faces of tension in creative climates. *Creativity and Innovation Management, 19*(2), 73-88.

Jafri, M. H. (2010). Organizational commitment and employee's innovative behavior: A study in retail sector. *Journal of Management Research, 10*(1), 62-68.

Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology, 73*(3), 287-302.

Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships between job demands, and job performance and job satisfaction. *Academy of Management Journal, 44*(5), 1039-1050.

Janssen, O., Van de Vliert, E., & West, M. (2004). The bright and dark sides of individual and group innovation: A special issue introduction. *Journal of Organizational Behavior, 25*(2), 129-145.

Joia, L. A. (2000). Measuring intangible corporate assets: Linking business strategy with intellectual capital. *Journal of Intellectual Capital, 1*(1), 68-84.

Kale, P., Singh, H., & Perlmutter, H. (2000). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal, 21*(3), 217-237.

Kalling, T. (2003). Knowledge management and the occasional links with performance. *Journal of Knowledge Management, 7*(3), 67-81.

Kallio, A., Harmaakorpi, V., & Pihkala, T. (2010). Absorptive capacity and social capital in regional innovation systems: The case of the Lahti region in Finland. *Urban Studies, 47*(2), 303-319.

Kanter, R. M. (1988). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organizations. *Knowledge Management and Organisational Design, 10*(1), 93-131.

Kaothien, U. (1991). Regional and urbanisation policy in Thailand: The tertiary sector as a leading sector in regional development. *Urban Studies, 28*(6), 1027-1043.

Kaplan, R. S., & Norton, D. P. (2004). The strategy map: Guide to aligning intangible assets. *Strategy & Leadership, 32*(5), 10-17.

Karlsson, H., & Lukka, K. (2010). *The existence and role of formal and informal feedback in organizational control.* Turku School of Economics, Finland.

Karvalics, L. Z. (2008). *Information Society–what is it exactly?(The meaning, history and conceptual framework of an expression)*. Budapest: Leonardo da Vinci.

Kaufmann, A., & Tödtling, F. (2002). How effective is innovation support for SMEs? An analysis of the region of Upper Austria. *Technovation, 22*(3), 147-159.

Kaufmann, L., & Schneider, Y. (2004). Intangibles: a synthesis of current research. *Journal of Intellectual Capital*.

Kenessey, Z. (1987). The primary, secondary, tertiary and quaternary sectors of the economy. *Review of Income and Wealth, 33*(4), 359-385.

Kim, D., & Kogut, B. (1996). Technological platforms and diversification. *Organization Science, 7*(3), 283-301.

Kim, L. (1997). The dynamics of Samsung's technological learning in semiconductors. *California Management Review, 39*(3), 86-100.

Kim, L. (1998). Crisis construction and organizational learning: Capability building in catching-up at Hyundai motor. *Organization Science, 9*(4), 506-521.

Kim, S., & Malhotra, N. K. (2005). Predicting system usage from intention and past use: scale issues in the predictors. *Decision Sciences, 36*(1), 187-196.

Kim, T. T., Lee, G., Paek, S., & Lee, S. (2013). Social capital, knowledge sharing and organizational performance. *International Journal of Contemporary Hospitality Management, 25*(5), 683-704.

King, E. B., De Chermont, K., West, M., Dawson, J. F., & Hebl, M. R. (2007). How innovation can alleviate negative consequences of demanding work contexts: The influence of climate for innovation on organizational outcomes. *Journal of Occupational and Organizational Psychology, 80*(4), 631-645.

Kleysen, R. F., & Street, C. T. (2001). Toward a multi-dimensional measure of individual innovative behavior. *Journal of Intellectual Capital, 2*(3), 284-296.

Kogut, B., & Zander, U. (1996). What firms do? Coordination, identity, and learning. *Organization Science, 7*(5), 502-518.

Koonnathamdee, P. (2013). *A turning point for the service sector in Thailand*. ADB Economics Working Paper Series, (353). Manila.

Kumar, M., & Kumar, K. (2016). An economic analysis of foreign direct investment in service sector in India. *International Journal of Informative & Futuristic Research, 3*(10), 3950-3953.

Kuznets, S. (1973). Modern economic growth: Findings and reflections. *The American Economic Review, 63*(3), 247-258.

Kwee, K. C. (2008). Intellectual capital: Definitions, categorization and reporting models. *Journal of Intellectual Capital, 9*(4), 609-638.

Lane, P. J., Koka, B. R., & Pathak, S. (2006). The reification of absorptive capacity: A critical review and rejuvenation of the construct. *Academy of Management Review, 31*(4), 833-863.

Lane, P. J., & Lubatkin, M. (1998). Relative absorptive capacity and interorganizational learning. *Strategic Management Journal, 19*(5), 461-477.

Lane, P. J., Salk, J. E., & Lyles, M. A. (2001). Absorptive capacity, learning, and performance in international joint ventures. *Strategic Management Journal, 22*(12), 1139-1161.

Leana, C. R., & Pil, F. K. (2006). Social capital and organizational performance: Evidence from urban public schools. *Organization Science, 17*(3), 353-366.

Leana III, C. R., & Van Buren, H. J. (1999). Organizational social capital and employment practices. *Academy of Management Review, 24*(3), 538-555.

Lee, C., & Yang, J. (2000). Knowledge value chain. *Journal of Management Development, 19*(9), 783-794. doi:10.1108/02621710010378228

Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. *Journal of Management Information Systems, 20*(1), 179-228.

Lee, H., & Suh, Y. (2003). Knowledge conversion with information technology of Korean companies. *Business Process Management Journal, 9*(3), 317-336.

Lee, L., & Sukoco, B. M. (2007). The effects of entrepreneurial orientation and knowledge management capability on organizational effectiveness in Taiwan: The moderating role of social capital. *International Journal of Management,*

24(3), 549-572.

Lee, V., Leong, L., Hew, T., & Ooi, K. (2013). Knowledge management: A key determinant in advancing technological innovation? *Journal of Knowledge Management, 17*(6), 848-872.

Lesser, E. L., & Storck, J. (2001). Communities of practice and organizational performance. *IBM Sstems Journal, 40*(4), 831-841.

Lev, B. (2001). *Intangibles: Management, measurement, and reporting*. Washington DC: Brookings Institution Press.

Li, D., & Wang, K. (2009). Zhili ziben liupai yanjiu [A research on schools of intellectual capital]. *Science & Technology Progress and Policy, 26*(20), 194-200.

Li, X., & Zheng, Y. (2014). The influential factors of employees' innovative behavior and the management advices. *Journal of Service Science and Management, 7*(6), 446-450.

Liao, S., Fei, W., & Chen, C. (2007). Knowledge sharing, absorptive capacity, and innovation capability: An empirical study of Taiwan's knowledge-intensive industries. *Journal of Information Science, 33*(3), 340-359.

Lichtenthaler, U. (2009). Absorptive capacity, environmental turbulence, and the complementarity of organizational learning processes. *Academy of Management Journal, 52*(2), 822-846.

Liebowitz, J., & Wright, K. (1999). Does measuring knowledge make "cents"? *Expert Systems with Applications, 17*(2), 99-103.

Lin, F., & Xu, J. (2010). Absorptive capacity theory of foreign studies: A review. *Journal of Intelligence, 29*(5), 75-80.

Lin, N. (1982). Social resources and instrumental action. In *Social structure and network analysis* (pp. 131-145). Beverly Hills: Sage.

Lin, N. (1999). Building a network theory of social capital. *Connections, 22*(1), 28-51.

Lin, N. (2001). *A theory of social structure and action*. New York: Cambridge University Press.

Lin, S., & Huang, Y. (2005). The role of social capital in the relationship between human capital and career mobility: Moderator or mediator? *Journal of*

Intellectual Capital, 6(2), 191-205.

Lin, Y., & Chen, Y. (2007). Does innovation lead to performance? An empirical study of SMEs in Taiwan. *Management Research News, 30*(2), 115-132.

Lippman, S. A., & Rumelt, R. P. (1982). Uncertain imitability: An analysis of interfirm differences in efficiency under competition. *The Bell Journal of Economics, 13*(2), 418-438.

Liu, P., Chen, W., & Tsai, C. (2005). An empirical study on the correlation between the knowledge management method and new product development strategy on product performance in Taiwan's industries. *Technovation, 25*(6), 637-644.

Liu, X., Wright, M., Filatotchev, I., Dai, O., & Lu, J. (2010). Human mobility and international knowledge spillovers: Evidence from high-tech small and medium enterprises in an emerging market. *Strategic Entrepreneurship Journal, 4*(4), 340-355.

Lo, F., & Salih, K. (1978). Growth poles and regional policy in open dualistic economies: Western theory and Asian reality. In *Growth pole strategy and regional development policy* (pp. 243-269). Oxford: Pergamon Press.

Lynn, B. (2000). Intellectual capital: Unearthing hidden value by managing intellectual assets. *Ivey Business Journal, 64*(3), 48-52.

Maditinos, D., Sevic, Z., & Tsairidis, C. (2010). Intellectual capital and business performance: An empirical study for the Greek listed companies. *European Research Studies, XIII*(3), 145-167.

Maier, R., & Remus, U. (2002). Defining process-oriented knowledge management strategies. *Knowledge and Process Management, 9*(2), 103-118.

Mäkelä, K., Andersson, U., & Seppälä, T. (2012). Interpersonal similarity and knowledge sharing within multinational organizations. *International Business Review, 21*(3), 439-451.

Malhotra, Y. (2000). Knowledge assets in the global economy: Assessment of national intellectual capital. *Journal of Global Information Management, 8*(3), 5-15.

Manoharan, A., & Singal, M. (2019). Organizational effectiveness in hospitality: Managers perspectives. *International Journal of Hospitality Management, 80,* 123-125.

March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science, 2*(1), 71-87.

Mariano, S., & Walter, C. (2015). The construct of absorptive capacity in knowledge management and intellectual capital research: Content and text analyses. *Journal of Knowledge Management, 19*(2), 372-400.

Marr, B., & Adams, C. (2004). The balanced scorecard and intangible assets: Similar ideas, unaligned concepts. *Measuring Business Excellence, 8*(3), 18-27.

Marr, B., & Chatzkel, J. (2004). Intellectual capital at the crossroads: Managing, measuring, and reporting of IC. *Journal of Intellectual Capital, 5*(2), 224-229.

Marr, B., Gupta, O., Pike, S., & Roos, G. (2003). Intellectual capital and knowledge management effectiveness. *Management Decision, 41*(8), 771-781.

Marr, B., Schiuma, G., & Neely, A. (2002). Assessing strategic knowledge assets in e-business. *International Journal of Business Performance Management, 4*(2), 279-295.

Marr, B., Schiuma, G., & Neely, A. (2004). Intellectual capital–defining key performance indicators for organizational knowledge assets. *Business Process Management Journal, 10*(5), 551-569. doi:10.1108/14637150410559225

Marsh, R. (2003). Social capital, guanxi, and the road to democracy in Taiwan. *Comparative Sociology, 2*(4), 575-604.

Marshall, M. N. (1996). Sampling for qualitative research. *Family Practice, 13*(6), 522-526.

Martins, E. C., & Terblanche, F. (2003). Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management, 6*(1), 64-74. doi:10.1108/14601060310456337

Matoskova, J. (2016). Measuring knowledge. *Journal of Competitiveness, 8*(4), 5-29.

Maurer, I., Bartsch, V., & Ebers, M. (2011). The value of intra-organizational social capital: How it fosters knowledge transfer, innovation performance, and growth. *Organization Studies, 32*(2), 157-185.

McCann, J. (2004). Organizational effectiveness: Changing concepts for changing environments. *People and Strategy, 27*(1), 42-50.

Mehralian, G., Nazari, J. A., Akhavan, P., & Rasekh, H. R. (2014). Exploring the

relationship between the knowledge creation process and intellectual capital in the pharmaceutical industry. *The Learning Organization, 21*(4), 258-273.

Mills, A. M., & Smith, T. A. (2011). Knowledge management and organizational performance: a decomposed view. *Journal of Knowledge Management, 15*(1), 156-171. doi:10.1108/13673271111108756

Miozzo, M. M. (2003). *Internationalization, technology and services*. Cheltenham, UK: Edward Elgar Publishing Limited.

Mohr, L. B. (1982). *Explaining organizational behavior*. San Francisco: Jossey-Bass.

Mohrman, S. A., Finegold, D., & Mohrman Jr, A. M. (2003). An empirical model of the organization knowledge system in new product development firms. *Journal of Engineering and Technology Management, 20*(1), 7-38.

Molnar, J. J., & Rogers, D. L. (1976). Organizational effectiveness: An empirical comparision of the goal and system resource approaches. *The Sociological Quarterly, 17*(3), 401-413.

Moran, P. (2005). Structural vs. relational embeddedness: Social capital and managerial performance. *Strategic Management Journal, 26*(12), 1129-1151.

Morgan, K. (1997). The learning region: Institutions, innovation and regional renewal. *Regional Studies, 31*(5), 491-503.

Mouritsen, J., Bukh, P., Larsen, H., & Johansen, M. (2002). Developing and managing knowledge through intellectual capital statements. *Journal of Intellectual Capital, 3*(1), 10-29.

Mujtaba, B. G., Cavico, F. J., & Sungkhawan, J. (2011). Business ethics of government employees and future lawyers in Thailand: A study of age, gender, management experience, and education. *International Business Research, 4*(1), 16-27.

Mura, M., Lettieri, E., Spiller, N., & Radaelli, G. (2012). Intellectual capital and innovative work behaviour: Opening the black box. *International Journal of Engineering Business Management, 4*(1), 4-39.

Mura, M., Moustaghfir, K., Lettieri, E., Radaelli, G., & Spiller, N. (2013). Promoting professionals' innovative behaviour through knowledge sharing: The moderating role of social capital. *Journal of Knowledge Management, 17*(4), 527-544. doi:10.1108/jkm-03-2013-0105

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review, 23*(2), 242-266.

NESDB. (2019). *Thailand's Key Macroeconomic*. Retrieved from: https://www.bot.or.th/Thai/Statistics/Graph/Chart_Pack/Chart%20Pack.pdf

Newbert, S. L. (2007). Empirical research on the resource-based view of the firm: An assessment and suggestions for future research. *Strategic Management Journal, 28*(2), 121-146.

Noblet, J. P., Simon, E., & Parent, R. (2011). Absorptive capacity: A proposed operationalization. *Knowledge Management Research & Practice, 9*(4), 367-377.

Nonaka, I. (1991). The knowledge-creating company: The best Japanese companies offer a guide to the organizational roles, structures, and practices that produce continuous innovation. *Harvard Business Review, July–August 2007*, 96-104.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science, 5*(1), 14-37.

Nonaka, I., Toyama, R., & Konno, N. (2000). SECI, Ba and leadership: A unified model of dynamic knowledge creation. *Long Range Planning, 33*(1), 5-34.

Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). New York: McGraw-Hill.

O'dell, C., & Grayson, C. J. (1998). If only we knew what we know: Identification and transfer of internal best practices. *California Management Review, 40*(3), 154-174.

OECD. (2011). New sources of growth: Intangible assets. Retrieved from https://www.oecd.org/sti/inno/46349020.pdf

Oliver, J. L. H., & Porta, J. I. D. (2006). How to measure IC in clusters: Empirical evidence. *Journal of Intellectual Capital, 7*(3), 354-380.

Omoregie, G., & Popoola, S. (2018). Organizational culture, information sharing and perception of records management system as factors affecting organizational effectiveness in the banking industry in Nigeria. *Research Journal of Library and Information Science, 2*(3), 53-73.

Onyx, J., & Bullen, P. (2000). Measuring social capital in five communities. *The Journal of Applied Behavioral Science, 36*(1), 23-42.

Ordonez de Pablos, P. (2004). The importance of relational capital in service industry: The case of the Spanish banking sector. *International Journal of Learning and Intellectual Capital, 1*(4), 431-440.

Örnek, A. Ş., & Ayas, S. (2015). The relationship between intellectual capital, innovative work behavior and business performance reflection. *Procedia-Social and Behavioral Sciences, 195*(1), 1387-1395.

Penrose, E. T., & Pitelis, C. (1959). *The growth of the firm: The legacy of Edith Penrose*. Oxford: Oxford University Press on Demand.

Pérez-López, S., & Alegre, J. (2012). Information technology competency, knowledge processes and firm performance. *Industrial Management & Data Systems, 112*(4), 644-662. doi:10.1108/02635571211225521

Petty, R., & Guthrie, J. (2000). Intellectual capital literature review: Measurement, reporting and management. *Journal of Intellectual Capital, 1*(2), 155-176.

Pieterse, A. N., Van Knippenberg, D., Schippers, M., & Stam, D. (2010). Transformational and transactional leadership and innovative behavior: The moderating role of psychological empowerment. *Journal of Organizational Behavior, 31*(4), 609-623.

Pike, S., Rylander, A., & Roos, G. (2002). Intellectual capital management and disclosure. In N. Bontis & C. W. Choo (Eds.), *The strategic management of intellectual capital and organizational knowledge* (pp. 657-671). New York: Oxford University Press.

Porter, M. E. (1980). *Competitive strategy: Techniques for analyzing industries and competitors*. America, US: The Free Press.

Porter, M. E. (1991). Towards a dynamic theory of strategy. *Strategic Management Journal, 12*(S2), 95-117.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology, 24*(1), 1-24.

Portes, A., & Sensenbrenner, J. (1993). Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of Sociology, 98*(6), 1320-1350.

Prajogo, D. I. (2006). The relationship between innovation and business performance-a

comparative study between manufacturing and service firms. *Knowledge and Process Management, 13*(3), 218-225.

Prashantham, S., & Floyd, S. W. (2012). Routine microprocesses and capability learning in international new ventures. *Journal of International Business Studies, 43*(6), 544-562.

Priem, R. L., & Butler, J. E. (2001). Tautology in the resource-based view and the implications of externally determined resource value: Further comments. *Academy of Management Review, 26*(1), 57-66.

Pundt, A., Martins, E., & Nerdinger, F. W. (2010). Innovative behavior and the reciprocal exchange between employees and organizations. *German Journal of Human Resource Management, 24*(2), 173-193.

Pusaksrikit, P. (2006). *How does knowledge management improve the service industry?* Jonkoping University, Sweden.

Putnam, R. D. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ.: Princeton University Press.

Putnam, R. D. (1995). Tuning in, tuning out: The strange disappearance of social capital in America. *Political Science & Politics, 28*(4), 664-684.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster Paperbacks.

Quinn, R. E., & Rohrbaugh, J. (1981). A competing values approach to organizational effectiveness. *Public Productivity Review, 5*(5), 122-140.

Rajesh, R., Pugazhendhi, S., & Ganesh, K. (2011). Towards taxonomy architecture of knowledge management for third-party logistics service provider. *Benchmarking: An International Journal, 18*(1), 42-68.

Ramadan, B. M., Dahiyat, S. E., Bontis, N., & Al-Dalahmeh, M. A. (2017). Intellectual capital, knowledge management and social capital within the ICT sector in Jordan. *Journal of Intellectual Capital, 18*(2), 437-462.

Rastogi, P. (2002). Knowledge management and intellectual capital as a paradigm of value creation. *Human Systems Management, 21*(4), 229-240.

Rasulzada, F., & Dackert, I. (2009). Organizational creativity and innovation in relation to psychological well-being and organizational factors. *Creativity Research*

Journal, 21(2), 191-198.

Reed, K. K., Lubatkin, M., & Srinivasan, N. (2006). Proposing and testing an intellectual capital-based view of the firm. *Journal of Management Studies, 43*(4), 867-893.

Riahi-Belkaoui, A. (2003). Intellectual capital and firm performance of US multinational firms. *Journal of Intellectual Capital, 4*(2), 215-226.

Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management, 35*(3), 718-804.

Rocha, F. (1999). Inter-firm technological cooperation: Effects of absorptive capacity, firm-size and specialization. *Economics of Innovation and New Technology, 8*(3), 253-271.

Rogers, E. M. (1983). *The diffusion of innovations* (3rd ed.). New York: The Free Press

Rojas, R. R. (2000). A review of models for measuring organizational effectiveness among for-profit and nonprofit organizations. *Nonprofit Management and Leadership, 11*(1), 97-104.

Roos, J., Edvinsson, L., & Dragonetti, N. C. (1997). *Intellectual capital: Navigating the new business landscape*. London: Macmillan Press LTD.

Rosenkopf, L., & Nerkar, A. (2001). Beyond local search: Boundary-spanning, exploration, and impact in the optical disk industry. *Strategic Management Journal, 22*(4), 287-306.

Rouse, M. J., & Daellenbach, U. S. (2002). More thinking on research methods for the resource-based perspective. *Strategic Management Journal, 23*(10), 963-967.

Rowley, J. (2001). Knowledge management in pursuit of learning: The learning with knowledge cycle. *Journal of Information Science, 27*(4), 227-237.

Rubin, A., & Babbie, E. (2005). *Research methods for social work (ed.)*. Belmont, CA, USA: Brooks/Cole.

Sahin, I. (2010). *Organizational social capital and perceived performance of drug law enforcement departments: A case study in Turkey.* (2004-2019). University of Central, Orlando, Florida. (4278)

Santos-Rodrigues, H., & Figueroa, P. (2007). The influence of intellectual capital on the

innovativeness of the organization: Theoretical propose. *International Journal of Knowledge, Culture and Change Management, 6*(1), 75-80.

Sarker, S. J., Crossman, A., & Chinmeteepituck, P. (2003). The relationships of age and length of service with job satisfaction: An examination of hotel employees in Thailand. *Journal of Managerial Psychology, 18*(7), 745-758.

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal, 37*(3), 580-607.

Seleim, A., & Khalil, O. (2011). Understanding the knowledge management-intellectual capital relationship: A two-way analysis. *Journal of Intellectual Capital, 12*(4), 586-614.

Sharabati, A. A., Jawad, S. N., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision, 48*(1), 105-131.

Sheaffer, Z., Carmeli, A., Steiner-Revivo, M., & Zionit, S. (2009). Downsizing strategies and organizational performance: A longitudinal study. *Management Decision, 47*(6), 950-974.

Shih, K., Chang, C., & Lin, B. (2010). Assessing knowledge creation and intellectual capital in banking industry. *Journal of Intellectual Capital, 11*(1), 74-89.

Shilbury, D., & Moore, K. A. (2006). A study of organizational effectiveness for national Olympic sporting organizations. *Nonprofit and Voluntary Sector Quarterly, 35*(1), 5-38.

Simonin, B. L. (1997). The importance of collaborative know-how: An empirical test of the learning organization. *Academy of Management Journal, 40*(5), 1150-1174.

Simonin, B. L. (1999). Ambiguity and the process of knowledge transfer in strategic alliances. *Strategic Management Journal, 20*(7), 595-623.

Singh, R. K., Garg, S. K., & Deshmukh, S. (2010). The competitiveness of SMEs in a globalized economy. *Management Research Review, 33*(1), 54-65.

Skandia, A. (1994). *Visualizing intellectual capital in Skandia (supplement to Skandia's 1994 annual report)*. Stockholm: Skandia.

Slater, S., & Robson, M. J. (2012). Social capital in Japanese-Western alliances:

Understanding cultural effects. *International Marketing Review, 29*(1), 6-23.

Slater, S. F., & Narver, J. C. (1994). Market orientation, customer value, and superior performance. *Business Horizons, 37*(2), 22-28.

Smith, K. G., & Gregorio, D. D. (2002). Bisociation, discovery, and the role of entrepreneurial action. In *Strategic entrepreneurship: Creating a new mindset* (pp. 127-150). Oxford: Blackwell Publishing Ltd.

Soliman, F., & Spooner, K. (2000). Strategies for implementing knowledge management: Role of human resources management. *Journal of Knowledge Management, 4*(4), 337-345.

Song, M., Droge, C., Hanvanich, S., & Calantone, R. (2005). Marketing and technology resource complementarity: An analysis of their interaction effect in two environmental contexts. *Strategic Management Journal, 26*(3), 259-276.

Soo, C., Tian, A. W., Teo, S. T., & Cordery, J. (2017). Intellectual capital–enhancing HR, absorptive capacity, and innovation. *Human Resource Management, 56*(3), 431-454.

Sowa, J. E., Selden, S. C., & Sandfort, J. R. (2004). No longer unmeasurable? A multidimensional integrated model of nonprofit organizational effectiveness. *Nonprofit and Voluntary Sector Quarterly, 33*(4), 711-728.

Spender, J. C. (1996). Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal, 17*(S2), 45-62.

Ståhle, P. (2008). National Intellectual Capital as an Economic Driver-Perspectives on Identification and Measurement. In *Inspired by knowledge in organisations: Essays in honor of Professor Karl-Erik Sveiby on his 60th birthday 29th June 2008* (pp. 94-121). Helsingfors, Finland: Edita Prima Ltd.

Statista. (2019). Thailand: Share of economic sectors in the gross domestic product (GDP) from 2008 to 2018. Available from https://www.statista.com/statistics/331893/share-of-economic-sectors-in-the-GDP-in-thailand/#statisticContainer Retrieved 2 February 2020

Stenholm, P. (2011). Innovative behavior as a moderator of growth intentions. *Journal of Small Business Management, 49*(2), 233-251.

Stewart, T. A. (1997). *Intellectual capital: the new wealth of organizations*. New York:

Doubleday/Currency.

Stewart, T. A. (1998). *Intellectual Capital - The New Wealth of Organizations*. London: Nicolas Brealey Publishing.

Strasser, S., Eveland, J., Cummins, G., Deniston, O. L., & Romani, J. H. (1981). Conceptualizing the goal and system models of organizational effectiveness-implications for comparative evaluation research. *Journal of Management Studies, 18*(3), 321-340.

Subramaniam, M., & Youndt, M. A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal, 48*(3), 450-463.

Sullivan, P. H. (1998). *Profiting from intellectual capital, extracting value from innovation*. New York: John Wiley.

Sullivan, P. H. (2000). *Value driven intellectual capital: How to convert intangible corporate assets into market value*. New York: John Wiley & Sons, Inc.

Sutheebanjard, P., & Premchaiswadi, W. (2010). Analysis of calendar effects: Day-of-the-week effect on the Stock Exchange of Thailand (SET). *International Journal of Trade, Economics and Finance, 1*(1), 57-62.

Sveiby, K. E. (1997a). The intangible assets monitor. *Journal of Human Resource Costing and Accounting, 2*(1), 73-97.

Sveiby, K. E. (1997b). *The new organizational wealth: Managing & measuring knowledge-based assets*. San Francisco: Berrett-Koehler Publishers.

Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal, 17*(S2), 27-43.

Tanriverdi, H. (2005). Information technology relatedness, knowledge management capability, and performance of multibusiness firms. *Management Information Systems Quarterly, 29*(2), 311-334.

Teece, D. J. (1981). The multinational enterprise: Market failure and market power consideration. *Sloan Management Review, 22*(3), 3-17.

Teece, D. J. (1998). Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review, 40*(3), 55-79.

Teece, D. J. (2000). *Managing intellectual capital: Organizational, strategic, and policy dimensions*. New York: Oxford University Press.

Tellis, G. J., Prabhu, J. C., & Chandy, R. K. (2009). Radical innovation across nations: The preeminence of corporate culture. *Journal of Marketing, 73*(1), 3-23.

Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An "interpretive" model of intrinsic task motivation. *Academy of Management Review, 15*(4), 666-681.

Thum-Thysen, A., Voigt, P., Bilbao-Osorio, B., Maier, C., & Ognyanova, D. (2019). Investment dynamics in Europe: Distinct drivers and barriers for investing in intangible versus tangible assets? *Structural Change and Economic Dynamics, 51*(1), 77-88.

Todorova, G., & Durisin, B. (2007). Absorptive capacity: Valuing a reconceptualization. *Academy of Management Review, 32*(3), 774-786.

Tovstiga, G., & Tulugurova, E. (2007). Intellectual capital practices and performance in Russian enterprises. *Journal of Intellectual Capital, 8*(4), 695-707.

Tripsas, M., & Gavetti, G. (2000). Capabilities, cognition, and inertia: Evidence from digital imaging. *Strategic Management Journal, 21*(10/11), 1147-1161.

Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal, 44*(5), 996-1004.

Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal, 41*(4), 464-476.

Tseng, S., & Lee, P. (2014). The effect of knowledge management capability and dynamic capability on organizational performance. *Journal of Enterprise Information Management, 27*(2), 158-179. doi:10.1108/jeim-05-2012-0025

Upadhyayula, R. S., & Kumar, R. (2004). *Social capital as an antecedent of absorptive capacity of firms.* Paper presented at the DRUID Summer Conference 2004 on industrial dynamics, innovation and development, Elsinore, Denmark.

Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly, 41*(1), 464-478.

Van Den Bosch, F. A., Volberda, H. W., & De Boer, M. (1999). Coevolution of firm

absorptive capacity and knowledge environment: Organizational forms and combinative capabilities. *Organization Science, 10*(5), 551-568.

Van Dijk, A., Hendriks, P., & Romo-Leroux, I. (2016). Knowledge sharing and social capital in globally distributed execution. *Journal of Knowledge Management, 20*(2), 327-343. doi:10.1108/jkm-07-2015-0268

Vargo, S. L., & Lusch, R. F. (2004). The four service marketing myths: Remnants of a goods-based, manufacturing model. *Journal of Service Research, 6*(4), 324-335.

Venkatraman, N. (1990). Performance implications of strategic coalignment: A methodological perspective. *Journal of Management Studies, 27*(1), 19-41.

Veugelers, R. (1997). Internal R & D expenditures and external technology sourcing. *Research Policy, 26*(3), 303-315.

Walton, R. E. (1975). The diffusion of new work structures: Explaining why success didn't take. *Organizational Dynamics, Winter*, 3-21.

Warner, W. K., & Havens, A. E. (1968). Goal displacement and the intangibility of organizational goals. *Administrative Science Quarterly, 12*(4), 539-555.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171-180.

West, M. A., & Farr, J. L. (1990). Innovation at work. In *Innovation and creativity at work: Psychological and organizational strategies* (pp. 3-13). Chichester: Wiley.

Wignaraja, G. (2002). Firm size, technological capabilities and market-oriented policies in Mauritius. *Oxford Development Studies, 30*(1), 87-104.

Wiig, K. M. (1997). Integrating intellectual capital and knowledge management. *Long Range Planning, 30*(3), 399-405.

Williamson, O. E. (1973). Markets and hierarchies: Some elementary considerations. *The American Economic Review, 63*(2), 316-325.

Winter, S. G. (2000). The satisficing principle in capability learning. *Strategic Management Journal, 21*(10-11), 981-996.

WIPO. (2017). Chapter 1: Global value chains: The face of 21st-century international commerce. In *World Intellectual Property Report 2017: Intangible Capital in Global Value Chains* (pp. 21-36). Retrieved from

https://www.wipo.int/edocs/pubdocs/en/wipo_pub_944_2017.pdf

Wolfe, M. (1955). The concept of economic sectors. *The Quarterly Journal of Economics, 69*(3), 402-420.

Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review, 18*(2), 293-321.

Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society, 27*(2), 151-208.

World Bank, W. D. I. (2017). Services, value added (% of GDP) [Data file]. Available from https://data.worldbank.org/indicator/NV.SRV.TOTL.ZS, from World Bank national accounts data

Wright, P. M., McMahan, G. C., & McWilliams, A. (1994). Human resources and sustained competitive advantage: A resource-based perspective. *International Journal of Human Resource Management, 5*(2), 301-326.

Wu, Q., & Shi, J. (2009). Qiyejia ziyuan-shehui ziben lilun zongshu [Resources of enterpriser: A literal survey of social capital theory]. *Academia Bimestris, 6*(1), 95-99.

Wu, W. (2008). Dimensions of social capital and firm competitiveness improvement: The mediating role of information sharing. *Journal of Management Studies, 45*(1), 122-146.

Wu, W., Chang, M., & Chen, C. (2008). Promoting innovation through the accumulation of intellectual capital, social capital, and entrepreneurial orientation. *R&D Management, 38*(3), 265-277.

Xerri, M., & Brunetto, Y. (2011). Fostering the innovative behaviour of SME employees: A social capital perspective. *Research & Practice in Human Resource Management, 19*(2), 43-59.

Xu, Q., & Xia, J. (2007). Resource-based theory and strategic management research. *Journal of Zhejiang University of Technology (Social Science), 6*(1), 31-36.

Yan, H., Chen, L., & Shen, J. (2002). A research on the relationship among intellectual capital, absorptive capacity and organizational innovation. *R&D Management 21*(5), 39-46.

Yan, X., & Yao, Y. (1997). Analysis on characteristics of development and spatial

distribution of the tertiary sector in Guangzhou. *Economic Geography, 17*(2), 41-48.

Yang, J., & Wan, C. (2004). Advancing organizational effectiveness and knowledge management implementation. *Tourism Management, 25*(5), 593-601.

Yang, S., & Zhou, Y. (2017). Intangible capital and China's economic growth: evidence from input–output tables. In *China's new sources of economic growth: human capital, innovation and technological change* (Vol. 2, pp. 145-169). Australia: ANU Press.

Yeoh, P. (2009). Realized and potential absorptive capacity: Understanding their antecedents and performance in the sourcing context. *Journal of Marketing Theory and Practice, 17*(1), 21-36.

Yli-Renko, H., Autio, E., & Sapienza, H. J. (2001). Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal, 22*(6), 587-613.

Youndt, M. A., & Snell, S. A. (2004). Human resource configurations, intellectual capital, and organizational performance. *Journal of Managerial Issues, 16*(3), 337-360.

Yu, S. (2013). Social capital, absorptive capability, and firm innovation. *Technological Forecasting and Social Change, 80*(7), 1261-1270.

Yuchtman, E., & Seashore, S. E. (1967). A system resource approach to organizational effectiveness. *American Sociological Review, 32*(6), 891-903.

Zack, M., McKeen, J., & Singh, S. (2009). Knowledge management and organizational performance: An exploratory analysis. *Journal of Knowledge Management, 13*(6), 392-409.

Zack, M. H. (1999). Developing a knowledge strategy. *California Management Review, 41*(3), 125-145.

Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review, 27*(2), 185-203.

Zahra, S. A., Ireland, R. D., & Hitt, M. A. (2000). International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal, 43*(5), 925-950.

Zaim, H., Tatoglu, E., & Zaim, S. (2007). Performance of knowledge management practices: A causal analysis. *Journal of Knowledge Management, 11*(6), 54-67.

Zaltman, G., Duncan, R., & Holbek, J. (1973). *Innovations and organizations*. New York: John Wiley & Sons.

Zhang, W. (2003). Shehui ziben: Lilun zhengbian yu jingyan yanjiu [Social capital: Theoretical discussion and empirical studies]. *Sociological Research, 4*(1), 23-35

Zhao, G., Chen, W., & Wang, X. (2009). Review on the connotation and components of intellectual capital. *Science & Technology Progress and Policy, 26*(4), 154-160.

Zheng, J., Wu, G., & Xie, H. (2017). Impacts of leadership on project-based organizational innovation performance: The mediator of knowledge sharing and moderator of social capital. *Sustainability, 9*(10), 1893.

Zheng, W., Yang, B., & McLean, G. N. (2010). Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management. *Journal of Business Research, 63*(7), 763-771.

Zou, T., Ertug, G., & George, G. (2018). The capacity to innovate: A meta-analysis of absorptive capacity. *Innovation, 20*(2), 87-121.

APPENDICES

APPENDIX A
QUESTIONNAIRE IN ENGLISH

No. 7214/ 110

International College
National Institute of Development Administration
Klongchan Bangkapi Bangkok 10240

February 14 , 2020

Dear

This letter confirms that Miss Xuemei Sun is a Ph.D. candidate at the International College of National Institute of Development Administration (ICO NIDA), Thailand under the supervision of Assistant Professor Sid Suntrayuth Ph.D. She is participating in the research project in the area of management. This research project is also a partial fulfillment of the Ph.D in Management at ICO NIDA.

We shall feel much obliged and remain grateful to you if you kindly supply the necessary information/data to the student as needed. The information collected will be kept as highly confidential and used purely for academic purpose. In case of any concerns, please feel free to contact her advisor, Assistant Professor Sid Suntrayuth Ph.D., at sidsuntrayuth@hotmail.com.

Thank you for your collaboration. We are looking forward to your positive response.

Sincerely,

Assoc.Prof.Dr.Piboon Puriveth
Dean, International College
National Institute of Development Administration

International College
Tel. 0 2727 3526

Introduction:

Dear Sir/Madam,

This survey is part of my doctoral dissertation, Doctor of Philosophy in Management (International Program) at National Institute of Development Administration. The purpose of this study is to study of your personal experiences in your working environment. I will appreciate if you could complete the following tables. Your personal information and responses will be anonymous and used for research study only.

Thank you so much for your kind taking time and effort.

Xuemei Sun (The researcher)

Section 1. Demographic and Company's Information: The following questions are intended to identify demographical and company' information. Please mark (X) the only one best answer.

Company's information:

1. Company's name:

   _____

2. Which year was this company founded? _____
3. How many full-time employees are working in this company?

   ( ) Less than 50 ( ) Between 50 to 99 ( ) 100 and more

4. Industry in SET

( )	Banking	( )	Finance & Securities
( )	Insurance	( )	Property Development
( )	Commerce	( )	Health Care Service
( )	Professional Service	( )	Tourism Leisure
( )	Media & Publishing	( )	Transportation & Logistics

Personal biography:

5. Gender: ( ) Male ( ) Female
6. Age:_____
7. What is the highest degree you have completed?

   ( ) Less than a Bachelor's Degree ( ) Bachelor's Degree

   ( ) Master's Degree ( ) Doctoral Degree

8. How long have you been working in this company?

   ( ) Less than 2 years ( ) 2 to 4 years

   ( ) 5 to 8 years ( ) More than 8 yeas

Section 2. Please indicate the extent to which you agree with each statement regarding performance of your organization. Choose only one answer for each statement by "X".

(For below statements: 1=Never; 2=Rarely; 3=Sometimes; 4= Very Often; 5=Always).

No.	Items	1	2	3	4	5
	My subordinates are … …					
1	Creating new ideas for organization's improvement.					
2	Searching out new working methods, techniques, or instruments.					
3	Generating original solutions to problems.					
4	Mobilizing support for innovative ideas.					
5	Acquiring approval for innovative ideas.					
6	Making important organizational members enthusiastic for innovative ideas.					
7	Transforming innovative ideas into useful application.					
8	Introducing innovative ideas into the work environment in a systemic way.					
9	Evaluating the utility of innovative ideas.					

(For below statements: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree)

No.	Items	1	2	3	4	5
	In this company … …					
10	Employees participate in company decisions.					
11	The majority of employees have worked for the company for many years. (More than 3 years)					
12	The employees have a high level of education/qualification.					
13	The company makes long-term training in its employees.					
14	If a key employee leaves, the company there will be losses.					
15	The company implements new ideas.					
16	The transaction time in company is decreasing.					
17	The company supports development of ideas.					
18	The systems of company allow information accessing.					
19	The atmosphere is supportive here.					
20	Customers are completely satisfied with the company.					
21	The company's brand is well-known in the market.					
22	Partnerships with suppliers and customers are strong.					
23	The company do not care what customers wants.					

No.	Items	1	2	3	4	5
	In this company, I feel that I and my colleagues ……					
24	We maintain close social relationships with some members.					
25	We have frequent communication with some members.					
26	We know some members on a personal level.					
27	We expect the complete truth from each other.					
28	We all fully trust one another.					
29	We count on each other.					
30	We feel a sense of togetherness or closeness with members.					
31	We have strong positive feeling towards members.					
32	We believe that members would help us if we needed it.					
33	We believe that members would share an open perspective towards new knowledge or information.					
34	We use common terminology when sharing information.					
35	Misunderstandings frequently occur when we communicate with members.					
36	We share the same vision for what the organization should accomplish.					
37	We share the belief that helping others is pleasant.					
	In my opinions … …					
38	The organization has the capacity to capture relevant, continuous, up-to-date information and knowledge on current and potential competitors.					
39	The organization management gives importance to and frequently engages in cooperation with R&D organizations, universities, business schools, technological institutes, etc., as a member or sponsor to create knowledge and innovations.					
40	The organization can assimilate new technologies and innovations that are useful or have proven potential.					
41	The organization can use employees' knowledge, experience and competencies in the assimilation and interpretation of new knowledge.					
42	The organization can develop knowledge management programs, guaranteeing the firm's capacity for understanding and carefully analyzing knowledge and technology from other organizations.					
43	The organization creates barriers that impede all employees from voluntarily passing on useful scientific and technological information they have acquired to others.					
44	The organization can adapt technologies created by others to the organization's specific requirements.					

No.	Items	1	2	3	4	5
45	The organization can use information technology to improve the flow of information, achieve effective sharing of knowledge and foster communication between members of the organization.					
46	The organization can exploit new knowledge at work and rapidly respond to changes in its environment.					
47	The organization achieves a high degree of application of the knowledge and experience acquired in the business fields.					
	Over the past two years, the company has improved its ability to… …					
48	Anticipate potential market opportunities for new products/services.					
49	Reduce redundancy of information and knowledge.					
50	Be receptive to suggestions for change.					
51	Streamline its internal processes.					
52	Be responsive to market change.					
53	Communicate well with other service-oriented organizations.					
54	Be successful at gaining feedback information from constituent groups.					
55	Have good retention numbers of employees.					
56	Maintain consistency in direction and decision making.					
57	Encourage and support further training for employees.					

Thank you for your kind participation.

APPENDIX B
QUESTIONNAIRE IN THAI

ที่ อว ๗๒๑๔/๑๐๙

วิทยาลัยนานาชาติ
สถาบันบัณฑิตพัฒนบริหารศาสตร์
คลองจั่น บางกะปิ กทม. ๑๐๒๔๐

๑๙ กุมภาพันธ์ ๒๕๖๓

เรื่อง ขอความอนุเคราะห์เก็บข้อมูลงานวิจัย

เรียน

สิ่งที่ส่งมาด้วย แบบสอบถามเพื่อการวิจัย

ด้วย Miss Xuemei Sun นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ (หลักสูตรนานาชาติ) วิทยาลัยนานาชาติ สถาบันบัณฑิตพัฒนบริหารศาสตร์ (NIDA) กำลังดำเนินการทำวิจัยภายใต้การให้คำปรึกษาของ ผู้ช่วยศาสตราจารย์ ดร.สิทธิ์ สุนทรายุทธ โดยเป็นการวิจัยในหัวข้อเกี่ยวกับการจัดการ ซึ่งโครงการวิจัยนี้เป็นส่วนหนึ่งของการสำเร็จการศึกษาระดับปริญญาเอกของวิทยาลัยนานาชาติ

เพื่อให้การดำเนินการวิจัยสำเร็จลุล่วงไปด้วยดี จึงใคร่ขอความอนุเคราะห์ขอข้อมูลที่จำเป็นนักศึกษา ข้อมูลดังกล่าวนี้จะได้รับการเก็บเป็นความลับและใช้เพื่อวัตถุประสงค์ทางวิชาการเท่านั้น หากมีข้อสงสัยประการใด สามารถติดต่อสอบถามอาจารย์ที่ปรึกษาวิทยานิพนธ์ ผู้ช่วยศาสตราจารย์ ดร.สิทธิ์ สุนทรายุทธ ได้ที่อีเมล์ sidsuntrayuth@hotmail.com

จึงเรียนมาเพื่อขอความอนุเคราะห์จากท่านและขอบคุณเป็นอย่างสูงมา ณ โอกาสนี้ด้วย

ขอแสดงความนับถือ

(รองศาสตราจารย์ ดร.ไพบูลย์ ภูริเวทย์)
คณบดีวิทยาลัยนานาชาติ
สถาบันบัณฑิตพัฒนบริหารศาสตร์

แบบสอบถาม

เรียนผู้ตอบแบบสอบถาม

แบบสอบถามนี้เป็นส่วนหนึ่งของการทำวิทยานิพนธ์ หลักสูตร Doctor of Philosophy in Management (International Program) วิทยาลัยนานาชาติ สถาบันบัณฑิตพัฒนบริหารศาสตร์ เพื่อศึกษาประสบการณ์ของท่านจากสภาพแวดล้อมในการทำงาน ผู้วิจัยใคร่ขอความร่วมมือจากท่านในการตอบแบบสอบถามทุกข้อโดยข้อมูลที่ได้จากท่านจะถูกเก็บเป็นความลับเพื่อผลทางการศึกษาวิจัยเท่านั้น

จึงเรียนมาเพื่อโปรดให้ความร่วมมือตอบแบบสอบถาม และขอขอบพระคุณในความร่วมมือมา ณ โอกาสนี้

Xuemei Sun

ผู้วิจัย

ส่วนที่ 1 ข้อมูลทั่วไปและข้อมูลของบริษัทที่ท่านสังกัด

คำชี้แจง โปรดกรอกข้อมูล หรือทำเครื่องหมาย X สำหรับคำตอบเพียงคำตอบเดียวเท่านั้น

ข้อมูลของบริษัท

1. ชื่อบริษัท _____
2. ปีที่ก่อตั้ง (พ.ศ.) _____
3. จำนวนของพนักงานประจำ

( ) น้อยกว่า 50 คน ( ) 50 – 99 คน ( ) ตั้งแต่ 100 คนขึ้นไป

4. ประเภทหมวดธุรกิจในตลาดหลักทรัพย์

( ) ธนาคาร ( ) เงินทุนและหลักทรัพย์

( ) ประกันภัยและประกันชีวิต ( ) พัฒนาอสังหาริมทรัพย์

( ) พาณิชย์ ( ) การแพทย์

( ) บริหารเฉพาะกิจ ( ) การท่องเที่ยวและสันทนาการ

( ) สื่อและสิ่งพิมพ์ ( ) ขนส่งและโลจิสติกส์

ข้อมูลผู้ตอบแบบสอบถาม

5. เพศ:

( ) ชาย ( ) หญิง

6. อายุ _____

7. การศึกษาระดับสูงสุด

( ) ต่ำกว่าปริญญาตรี ( ) ปริญญาตรี

( ) ปริญญาโท ( ) ปริญญาเอก

8. ระยะเวลาที่ทำงานกับบริษัท

( ) น้อยกว่า 2 ปี ( ) 2 - 4 ปี

( ) 5 - 8 ปี ( ) มากกว่า 8 ปีขึ้นไป

ส่วนที่ 2 สมรรถนะองค์กร

คำชี้แจง โปรดระบุระดับความคิดเห็นของท่านต่อรายการดังต่อไปนี้ ซึ่งเกี่ยวข้องกับสมรรถนะองค์กร โดยทำเครื่องหมาย X สำหรับคำตอบเพียงคำตอบเดียวเท่านั้น

(ระดับของการปฏิบัติ 1 = ไม่เคย 2 = น้อยครั้ง 3 = บางครั้ง 4 = บ่อยครั้ง 5 = เป็นประจำ)

ข้อ	รายการ	1	2	3	4	5
ผู้ใต้บังคับบัญชาของท่าน...						
1	สร้างแนวคิดใหม่ๆ ในการปรับปรุงและพัฒนาองค์กร					
2	ค้นหาวิธีการ กลวิธี หรือเครื่องมือใหม่ ๆ ในการทำงาน					
3	คิดค้นแนวทางการแก้ไขปัญหาต่างๆ ด้วยตนเอง					
4	ขอแรงสนับสนุนต่อความคิดเชิงนวัตกรรม					
5	ขอความเห็นชอบกับความคิดเชิงนวัตกรรมที่เกิดขึ้น					
6	ทำให้บุคคลากรหลักในองค์กรให้ความสนใจต่อความคิดเชิงนวัตกรรม					
7	เปลี่ยนความคิดเชิงนวัตกรรมไปสู่การปฏิบัติได้อย่างแท้จริง					
8	นำความคิดเชิงนวัตกรรมไปสู่สภาพแวดล้อมในการทำงานได้อย่างเป็นระบบ					
9	สามารถประเมินอรรถประโยชน์ของความคิดเชิงนวัตกรรมได้					

(ระดับความพึงพอใจ 1 = ไม่เห็นด้วยอย่างยิ่ง 2 = ไม่เห็นด้วย 3 = ไม่แน่ใจ 4 = เห็นด้วย 5 = เห็นด้วยอย่างยิ่ง)

ข้อ	รายการ	1	2	3	4	5
ในบริษัทของท่าน...						
10	พนักงานมีส่วนร่วมในการตัดสินใจของบริษัท					

ข้อ	รายการ	1	2	3	4	5
11	พนักงานส่วนใหญ่ทำงานให้กับบริษัทมาหลายปีแล้ว (ตั้งแต่ 3 ปีขึ้นไป)					
12	พนักงานมีระดับการศึกษา/วุฒิการศึกษาตั้งแต่ระดับปริญญาตรีขึ้นไป					
13	บริษัทจัดการฝึกอบรมเพื่อให้เกิดประสบการณ์ของพนักงานในระยะยาว					
14	หากบุคลากรคนสำคัญลาออกจากบริษัท บริษัทจะเกิดความเสียหาย					
15	บริษัทนำแนวคิดใหม่ๆ มาปฏิบัติ					
16	ระยะเวลาขั้นตอนของการดำเนินงานรวดเร็วยิ่งขึ้น					
17	บริษัทสนับสนุนการพัฒนาความคิด					
18	ระบบต่างๆ ของบริษัทเอื้อต่อการเข้าถึงข้อมูลได้สะดวก					
19	มีบรรยากาศที่ดีในการทำงาน					
20	ลูกค้ามีความพึงพอใจอย่างยิ่งต่อบริษัท					
21	แบรนด์ของบริษัทเป็นแบรนด์ดังติดตลาด					
22	มีความร่วมมือที่ดีกับซัพพลายเออร์และลูกค้า					
23	บริษัทไม่ให้ความสนใจต่อความต้องการของลูกค้า					
ในบริษัทนี้ ฉันรู้สึกว่าฉันและเพื่อนร่วมงาน.....						
24	เราสามารถรักษาความสัมพันธ์ทางสังคมอย่างใกล้ชิดกับสมาชิกในองค์กรบางคนได้					
25	เรามีการพูดคุยกันเป็นประจำกับสมาชิกในองค์กรบางคน					
26	เรารู้จักสมาชิกในองค์กรบางคนเป็นส่วนตัว					
27	เราไม่มีการปิดบังข้อเท็จจริงระหว่างกัน					
28	เราสามารถไว้วางใจซึ่งกันและกันได้อย่างเต็มที่					
29	เราสามารถพึ่งพาซึ่งกันและกันได้อย่างเต็มที่					
30	เรารับรู้ได้ถึงความเป็นน้ำหนึ่งใจเดียวกันหรือความใกล้ชิดกันกับสมาชิกในองค์กร					

ข้อ	รายการ	1	2	3	4	5
31	เรามีความรู้สึกเชิงบวกต่อสมาชิกในองค์กร					
32	เราเชื่อมั่นว่าสมาชิกในองค์กรจะช่วยเราในยามที่เราเกิดปัญหา					
33	เราเชื่อมั่นว่าสมาชิกในองค์กรจะเปิดมุมมองต่อความรู้หรือข้อมูลใหม่					
34	เราใช้คำศัพท์เฉพาะทางที่เข้าใจได้ง่ายเมื่อต้องแลกเปลี่ยนข้อมูลข่าวสารกัน					
35	เราเกิดความเข้าใจผิดบ่อยครั้งเมื่อต้องสื่อสารกับสมาชิกในองค์กร					
36	เราแลกเปลี่ยนวิสัยทัศน์และพันธกิจองค์กร					
37	เราแลกเปลี่ยนความเชื่อเรื่องการช่วยเหลือผู้อื่นเป็นสิ่งที่พึงกระทำ					
	ในความคิดเห็นของฉัน ...					
38	องค์กรมีความสามารถในการรวบรวมข้อมูลและความรู้ที่เกี่ยวข้องกับคู่แข่งในปัจจุบันและอนาคตได้อย่างต่อเนื่องและทันสมัย					
39	การบริหารองค์กรให้ความสำคัญและมุ่งเน้นความร่วมมือกับองค์กรวิจัยและพัฒนา มหาวิทยาลัย วิทยาลัยด้านธุรกิจ สถาบันเทคโนโลยี ฯลฯ ในฐานะสมาชิกหรือผู้สนับสนุนเพื่อสร้างความรู้และนวัตกรรมต่างๆ					
40	องค์กรสามารถผสมผสานเทคโนโลยีและนวัตกรรมใหม่ๆ ที่เป็นประโยชน์หรือมีศักยภาพ					
41	องค์กรสามารถใช้ความรู้ ประสบการณ์และความสามารถของพนักงานในการผสมผสานและตีความความรู้ใหม่ๆ					
42	องค์กรสามารถพัฒนาแผนการจัดการความรู้ ความสามารถของบริษัทในการทำความเข้าใจพร้อมวิเคราะห์ความรู้และเทคโนโลยีจากองค์กรอื่นๆ อย่างรอบคอบ					
43	องค์กรไม่สนับสนุนพนักงานในการส่งต่อข้อมูลทางวิทยาศาสตร์และเทคโนโลยีอันเป็นประโยชน์ที่พวกเขาได้รับระหว่างกัน					

ข้อ	รายการ	1	2	3	4	5
44	องค์กรสามารถปรับใช้เทคโนโลยีจากองค์กรอื่นให้ตรงตามความต้องการเฉพาะของตัวองค์กรเอง					
45	องค์กรสามารถใช้เทคโนโลยีสารสนเทศเพื่อพัฒนาการไหลของข้อมูลและบรรลุการแบ่งปันความรู้ที่มีประสิทธิภาพ พร้อมส่งเสริมการสื่อสารระหว่างสมาชิกภายในองค์กร					
46	องค์กรสามารถใช้ประโยชน์จากความรู้ใหม่ในที่ทำงานและตอบสนองต่อการเปลี่ยนแปลงในสภาพแวดล้อมได้อย่างรวดเร็ว					
47	องค์กรประสบความสำเร็จในการประยุกต์ใช้ความรู้และประสบการณ์ระดับสูงในด้านธุรกิจ					
	ในช่วงสองปีที่ผ่านมา บริษัทได้พัฒนาความสามารถในการ/ความ ...					
48	คาดการณ์โอกาสทางการตลาดที่เป็นไปได้ในอนาคตสำหรับผลิตภัณฑ์ หรือบริการใหม่ๆ					
49	ลดความซ้ำซ้อนของข้อมูลและองค์ความรู้					
50	เปิดกว้างรับข้อเสนอแนะสำหรับการเปลี่ยนแปลง					
51	ปรับปรุงกระบวนการภายในให้มีประสิทธิภาพมากยิ่งขึ้น					
52	ตอบสนองต่อการเปลี่ยนแปลงของตลาด					
53	ติดต่อสื่อสารได้เหมาะสมกับองค์กรที่มุ่งเน้นบริการในด้านอื่น ๆ					
54	ประสบความสำเร็จในการรับข้อมูลความคิดเห็นจากกลุ่มที่เป็นผู้มีส่วนได้ส่วนเสีย					
55	รักษาพนักงานให้อยู่กับองค์กรได้ดี					
56	มั่นคงต่อแนวทางในการตัดสินใจ					
57	ส่งเสริมและสนับสนุนการฝึกอบรมเพิ่มเติมสำหรับพนักงานในองค์กร					

ขอบคุณสำหรับความร่วมมือในการตอบแบบสอบถามนี้

BIOGRAPHY

NAME	Miss. XUEMEI SUN
ACADEMIC BACKGROUND	Master of Arts (English for Career) Thammasat University, Thailand The year of the degree completion: 2014 Bachelor of Business Administration (Global Business) Khon Kaen University, Thailand The year of the degree completion: 2012
EXPERIENCES	-