STRATEGIC IT ALIGNMENT AND ORGANIZATION PERFORMANCE: A RESOURCE-BASED VIEW

RACHADAPORN PINRATTANANONT

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY PROGRAM IN BUSINESS ADMINISTRATION FACULTY OF BUSINESS ADMINISTRATION RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI ACADEMIC YEAR 2015

STRATEGIC IT ALIGNMENT AND ORGANIZATION PERFORMANCE: A RESOURCE-BASED VIEW

RACHADAPORN PINRATTANANONT

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY PROGRAM IN BUSINESS ADMINISTRATION

FACULTY OF BUSINESS ADMINISTRATION
RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI

ACADEMIC YEAR 2015

Dissertation Title	Strategic IT Alignment and Organization Performance: A Resource-Based View
Name – Surname	Mrs. Rachadaporn Pinrattananont
Program	Business Administration
Dissertation Advisor	Assistant Professor Youdthachai Lertwaraprachaya, Ph.D.
Dissertation Co-Advisor	Mr. Chalermsak Lertwongsatien,Ph.D.
Academic Years	2015

DISSERTATION COMMITTEE

.....Chairman
(Associate Professor Kanibhatti Nitirojntanad, D.B.A.)

.....Committee
(Associate Professor Arunee Intrapairot, Ph.D.)

.....Committee
(Assistant Professor Daranee Pimchangthong, D.B.A.)

.....Committee
(Mr. Chalermsak Lertwongsatien, Ph.D.)

.....Committee
(Assistant Professor Youdthachai Lertworaprachaya, Ph.D.)

Approved by the Faculty of Business Administration Rajamangala University of Technology Thanyaburi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Business Administration.

Nartraphee Chaimongkol .....Dean of Faculty of Business Administration
(Assistant Professor Nartraphee Chaimongkol, Ph.D.)

July 8 , 2016

Dissertation Title	Strategic IT Alignment and Organization Performance: A Resource-Based View
Name-Surname	Mrs. Rachadaporn Pinrattananont
Program	Business Administration
Dissertation Advisor	Assistant Professor Youdthachai Lertwaraprachaya, Ph.D.
Dissertation Co-advisor	Mr. Chalermsak Lertwongsatien, Ph.D.
Academic Year	2015

ABSTRACT

The purposes of this study were to investigate the relationship among strategic Information Technology (IT) alignment and its support for core competencies, Information System (IS) capabilities, and over-all organizational performance under the Resource-Based View framework. The samples of this study were from 161 organizations selected via stratified random sampling taken from the Stock Exchange of Thailand (SET) official organization lists. The research tools used in this survey research were a structured questionnaire and a recommendation form**.** The Structural Equation Modeling (SEM) was assigned to test the hypothesis with Partial Least Square (PLS). The measurement model was assessed using Exploratory Factor Analysis (EFA) to explore the identified set of variables, and Confirmatory Factor Analysis (CFA) was used to redefine each construct and measurement model with PLS. Composite reliability test was applied to ensure the reliability of the results by examining the convergence and the discriminant validity of the constructs.

The results revealed that the majority of respondents were male and their positions were mostly manager or associate manager. The level of the Chief Information Officers (CIO) ranked third level from top management. The majority of organizations (22.98%) were listed as industrial estate organization. The operation time of organizations were 21-30 years with less than 500 general staff and 21-30 IT/IS staff. Furthermore, the proportion of IT budget was within the range of 5-15 percent.

The results of hypothesis tests asserted that the strategic IT alignment and IS capabilities positively affected IT support for core competencies. Furthermore, the IT support for core competencies yielded to a positive influence to the organizational

performance. Finally, this study justified that the strategic IT alignment and IS capabilities positively affected the organizational performance through IT support for core competencies as the mediator of the model.

Keywords: strategic IT alignment, resource-based view, IS capabilities, IT support for core competencies, organizational performance

Acknowledgements

Joining the Ph.D. Program at Rajamangala University of Technology Thanyaburi enables me to grow in so many directions, as an academic and a person. I have been blessed with friend and professor who have supported and provided guidance throughout the last several year. The value and successful of this study, I would like to express greatly appreciation to:

My advisor, Assistant Professor Dr. Youdthachai Lertwaraprachaya, also to Dr. Chalermsak Lertwongsatien, who is my co-advisor and advice me for the statistic with PLS in this study. My chairman, Associate Professor Dr. Kanibhatti Nitirojtanad, and my committee, Associate Professor Dr. Arunee Intrapairoth, and Assistant Professor Dr. Daranee Pimchangthong.

My father, Mr. Theerachai Nissaiman and my mother, Ms. Varisa Simchareoan, who support everything: education, family life, soul, cultivation, and successful. They are everything for my life, nothing in this world will more valuable than them, albeit my father has passed way. My husband, Colonel Arnat Pinrattananont and my children, Mr.Sorawit Pinrattananont, Miss Nattanicha Pinrattananont, Miss Supitchaya Pinrattananont, and Mr.Palath Pinrattananont, who encourage me to complete this study.

Finally, I am most thankful for everyone who always supports and encourages me to complete this study.

Rachadaporn Pinrattananont

Table of Contents

	Page
Abstract…….…..	(3)
Declaration …….	(5)
Acknowledgements …….	(6)
Table of contents …….	(7)
List of Tables ……..	(10)
List of Figures …….	(13)
List of Abbreviations …….…….	(14)
CHAPTER 1 INTRODUCTION ……	15
1.1 Background and Statement of the Problems ..……..…...…	16
1.2 Purpose of the Study …….……..…….....	22
1.3 Research Questions and Hypotheses ……...	22
1.4 Conceptual Framework ……...	25
1.5 Definition of Terms ……..…….	28
1.6 Delimitation of the Study …….……...	37
1.7 Structure and Contents ……..……	37
CHAPTER 2 REVIEW OF THE LITERATURE ……..	38
2.1 Strategic IT Alignment …….....	38
2.2 Resource-Based View …….	59
2.3 IS Capabilities ……..……...……	63
2.4 IT Support for Core Competencies …….…….……...	76
2.5 Organization Performance ……..	86
2.6 Chapter Summary ……	104
CHAPTER 3 RESEARCH METHODOLOGY ….……...……..	105
3.1 Model/Theoretical Framework ……...…….....	105
3.2 Research Hypothesis …….……..…	109
3.3 Research Design …….	112
3.4 Validity and Reliability Analysis ……	117

Table of Contents (Continued)

Page

3.5 Data Collection ……..……..… 119

3.6 Data Analysis ……..……...……...……..…… 121

3.7 Chapter Summary …….…….. 123

CHAPTER 4 RESEARCH RESULT….……...…….. 124

4.1 Data Preparation ……...……...…… 124

4.2 Pilot Study and Main Study ……..……...…… 126

4.3 Refining and Reliability Analysis ……... 127

4.4 Construct Assessment and Validity Analysis ……..… 127

4.5 Partial Least Square (PLS) ……..……..... 144

4.6 Demographic Summary ……... 145

4.7 Results of Constructs ……...… 148

4.8 Model Validity ……. 155

4.9 Hypothesis Testing Results …….. 156

410 Results of the Recommendation Form …… 165

4.11 Conclusion ……. 171

CHAPTER 5 CONCLUSION AND RECOMMENCATIONS ……..…...…….... 173

5.1 Summary of the Findings ……...…….……... 173

5.2 Discussion and Recommendation ….……..…….……... 174

5.3 Implication for Practice and Future Research ……..……...… 180

5.4 Chapter Summary ……...……..…….. 182

Bibliography ……... 184

Appendices ……. 201

Table of Contents (Continued)

Page

Appendix A Name of The Listing Organizations of the Stock Exchange Of Thailand (SET) Under the Supervision of Securities and Exchange Commission (SEC) ……. 202

Appendix B Definition of variables in the study ……..... 223

Appendix C The Full Items of Each Variable in Survey Questionnaire … 227

Appendix D Full Survey Questionnaire in the study …….. 232

Appendix E The Assessment of IOC Score …… 246

Appendix F Reliability Assessment By Cronbach's Alpha …… 251

Appendix G The Assessment for Normality Distribution ……. . 254

Appendix H Rotation Matrix and Factor Score of Factor Analysis …… 264

Appendix I The Recommendation Form For CIO …….. 273

Biography ……... 280

List of Tables

Page

Table 1.1 Definition of Constructs in This Study ……..……..…… 31

Table 1.2 Definition of variables of Each Construct ……...…..…..…… 33

Table 2.1 Review Literature of Strategic-IT Alignment …….…… 53

Table 2.2 Review Literature of IS Capabilities or IS Resources In term of Resource-Based View ……. 71

Table 2.3 Review Literature of Core Competencies Competitive Advantage ….. 83

Table 2.4 Review Literature of Organization Performance …….…….. 93

Table 2.5 Review Literature that relate this research …….…… 101

Table 3.1 The Detail of Likert Scale ……..……. 113

Table 3.2 The Population's Type and Number of Organizations ……... 113

Table 4.1 Total Variance Explained for Strategic-IT Alignment After Dropped Item …….. 128

Table 4.2 Rotated Component Matrix of Strategic-IT Alignment After Dropped Item …….. 129

Table 4.3 Statistic Of CFA, Reliability and Convergent Validity Assessment For Strategic IT Alignment ……...….. 131

Table 4.4 Total Variance Explained for IS capabilities After Dropped Items ….. 133

Table 4.5 Rotated Component Matrix of IS capabilities After Dropped Items ….. 134

Table 4.6 Statistic of CFA, Reliability and Convergent Validity Assessment Of IS capabilities ……...…… 135

Table 4.7 Total Variance Explained for IT support for Core Competencies After Dropped Items ……... 137

List of Tables (Continued)

Page

Table 4.8 Rotated Component Matrix of IT Support for Core Competencies After Dropped Items ……. 138

Table 4.9 Statistic of CFA, Reliability and Convergent Validity Assessment Of IT Support for core competencies …… 139

Table 4.10 Total Variance Explained for Organization Performance After Dropped Items ……..……. 140

Table 4.11 Rotated Component Matrix of Organization Performance Dropped Items ……..…… 141

Table 4.12 Statistic of CFA, Reliability and Convergent Validity Assessment for Organization Performance ……. 142

Table 4.13 Summary of Respondent's Demographics ……..……. 146

Table 4.14 Summary of Demographics of Organization …… 147

Table 4.15 The Meaning of Mean Agreement …… 149

Table 4.16 Mean and Standard Deviation of Organization's Strategic IT Alignment ……. 149

Table 4.17 Mean and Standard Deviation of IS capabilities ……..…… 151

Table 4.18 Mean and Standard Deviation of IT Support for Core Competencies .. 152

Table 4.19 Mean and Standard Deviation of the Organization Performance ……. 153

Table 4.20 Reliability and Discriminant Validity for Model Measurement …….... 156

Table 4.21 The Results of Hypothesis Testing of the Relationship Between Strategic IT Alignment and IT Support For Core Competencies …… 158

Table 4.22 The Results of Hypothesis Testing of the Relationship Between IS Capabilities and IT Support for Core Competencies …… 159

List of Tables (Continued)

Page

Table 4.23 The Results of Hypothesis Testing of the Relationship Between IT Support for Core Competencies and Organization Performance … 162

Table 4.24 Summary of Hypothesis Testing of the Proposed Theoretical Model .. 164

List of Figures

Page

Figure 1.1 Conceptual Framework of the Research ……..…… 27

Figure 2.1 The AFI Strategy Framework …….….. 40

Figure 2.2 The Information Systems Strategy Triangle ……. 41

Figure 2.3 The Strategic Alignment Model (SAM) …….….. 44

Figure 2.4 Perspective One: Strategy Execution …….…….…….. 45

Figure 2.5 Perspective Two: Technology Transfer …….…….….. 46

Figure 2.6 Perspective Three: Competitive Potential ……. 47

Figure 2.7 Perspective Four: Service Level …….……. 48

Figure 2.8 The VRIO Framework Shows the Relationship Between Resources Heterogeneity and Immobility to Get Sustained Competitive Advantage ……..……. 61

Figure 2.9 Core Competencies Model ……..……. 78

Figure 2.10 Relationship Between Competitive Advantage and Performance Model ……...…… 80

Figure 2.11 The seven critical viewpoint of Baldrige Criteria ……... 88

Figure 3.1 Model/Theoretical Framework …….. 108

Figure 4.1 The Normality Curve of Bplan ……..… 126

Figure 4.2 The Results of Testing the Structural Model of the Proposed Theoretical Framework ……. 157

List of Abbreviations

Bplan	Business Plan
BP-ITP Alignment	Business Plan and Information Technology Plan Alignment
CEO	Chief Exclusive Officer
CEO Participation	Chief Exclusive Officer Participation
CIO	Chief Information Officer
CIO Participation	Chief Information Officer Participation
Function	IT Support for functionalities -related competencies
Inside	Inside-Out Capabilities
Integrity	IT Support for integrity-relate competencies.
ITplan	Information Technology Plan
ITP-BP Alignment	Information Technology Plan and Business Plan Alignment
Market	IT Support for market-access competencies.
Outside	Outside-In Capabilities
Span	Spanning Capabilities

CHAPTER 1
INTRODUCTION

Nowaday is the information technology era, the data and information are electronic platform because the information technology both hardware and software are change rapidly. The development of information technology are better and more efficient than the past. So most of organizations implement the information technology for management their duties and activities. The firms can use, share, and sent information to anyone by no limitation. Moreover, the communication network are very fast and worldwide.

Above the reason, the organizations will be planned to provide the information technology by consideration the changing of information technology in the future. So, the organizations should have strategic plan both strategic IT plan and strategic business plan to allocate budget for providing the information system (IS) resources. The administrators of the top management have authorized to consider the total budget of organizations.

While studied coursework, the researcher interested in strategic information technology planning, because the researcher is one of information technology staff for providing the information system (IS) resources. Thus, it is necessary to brainstorming and working with the participants to provide and specify IT/IS resources by creating the strategic planning and allocate budget for IT department.

In this chapter, Section 1.1 provides a list of the problems and background of the research problems. Then, Section 1.2 gives purpose of the study. Research questions and hypotheses are discussed in Section 1.3. Strategic IT alignment, IS capabilities, IT support for core competencies and organization performance composes the conceptual frame work in Section 1.4. Section 1.5 and Section 1.6 discuss definition of terms and limitation of the study, respectively. Structure and contents are clarified in Section 1.7, while Section 1.8 is expected to be derived from the research.

1.1 Background and Statement of the Problems

In recent years, the organizations use new high technology of computer hardware and computer software based on Information System (IS) and Information Technology (IT) increasing. These show that IT/IS encouraged to increase the capabilities to manipulate the environment of organization for achieving the strategic information system goals and objectives of firms. In recent years the researchers are interested to study about fusing the capability of information system and information technology for improving the firm performance which this processing is namely business IT/IS alignment (Grant, Hackney, & Edgar, 2010).

Many organizations pay crucial attention to use the IT for processing and management that can create performance, sustainability and growth of their business. The use of IT must be planed both short-term plans and long-term plans, the organization must invest a lot of money to provide the best tools and effective resources for increasing the organization performance and sustained competitive advantage. Pitruzzello (2009) described that the business executives do not wish only wise investment more value in IT but there are also the way of extracting more value existing from hardware, software, infrastructure and information system resources. The strategic-IT alignment is important for contribution to organization performance that focuses on the relationship between IT resources themselves and business performance (Rivard, Raymond, & Verreault, 2006). There are numerous articles and researches in the area of information technology or information system that explored, examined and confirmed the necessity and desirability of business - IT alignment and Strategic-IT alignment. The business - IT alignment and Strategic IT alignment can foretell the business requirement in the future and lay out a pathway to meet these upcoming need (Xiaoying , Qianqian, & Dezhi, 2008; Chang, Hsiao, Lee, & Chang, 2009). Business IT alignment or strategic IT alignment is ranked as the top ten of business - IT issues (Luftman, 2000; Chang et al., 2009).

The strategic IT alignment is an integration model between business strategy and IT strategy which can drive the organizational capabilities to leverage technology for achieving the organization goals and attaining a sustained competitive advantage (Henderson & Venkatraman, 1999). The Strategic IT alignment is an organizational

learning process that integrates business and IT knowledge for supporting business objectives (Reich & Benbasat, 2000). The information technology investment, which can create competitive advantage and strategic-IT alignment, is an important forecaster of IT investment profitability (Brown, Gatian, & Hicks, 1995; Henderson & Venkatraman, 1999; Kearns & Lederer, 2001). Information Technology (IT) can positively influence organizational profitability by creating superior strategies that achieve a competitive advantage (Kearns & Lederer, 2001). The strategic IT alignment includes the set of clearly outcome compose of the business plan and IT plan (Earl, 1993; Chan, Huff, Barclay, & Copeland, 1997; Kearns & Lederer, 2001).

Ozkan et al. (2007) presented that the business-IT alignment can manipulate the assessment of the value added by information system assets. Like the effectiveness of information system, now is became a major topic for both practitioners and researchers. When information technology products open new opportunities for developing countries, they also pose a set of new challenges. In the same way, Yayla et al. (2012) claimed that developing countries have problems in IT usage because their environments tend to be politically volatile and unstable. Hence decisions around IT projects are often driven by reasons of suitability rather than rationality. Lee, Kim, Paulson, and Park (2008) mention that IT investment has been an important topic for senior executives. It is one of the major budget items in most organization. Management literature has shown contrary results on the impact of IT investments on performance (Sircar, Turnbow, & Bordoloi, 2000). That is to say IT investment can enhance firm performance.

The resource-based view (RBV) is a basic theory for archiving a competitive advantage for organization (Eisendardt & Martine, 2000; Barney, 1991). Rivard et al. (2006) proposed the firm resources which include whole assets, capabilities, organization processes, firm attributes, information, knowledge and know-how which possessed by the organization that enable the firm improved its efficiency and effectiveness. The resource-base view depends on two basal confirmation of resource heterogeneity[1] and resource immobility which may be different in long lasting term

[1] resources and capabilities own by firms which can be variant

(Mata, Fuerst, & Barney, 1995). There are many IS researches on the RBV which the result confirm RBV of information technology support to firm performance. Powell and Dent-Micallef (1997) found that only information technology resources do not furnish competitive advantages, firm can gain competitive advantages by leveraging complementary between firm and human resources. In addition, Ravichandran and Lertwongsatien (2005) found the relationship between IS support for core competencies and firm performance by invested resources in developing IT system for operating in business. For instance, Dell company pioneered a new business model called "virtual integration" by using IT system supported his business in direct selling by being able to deliver product and services with low cost to customers, virtual suppliers and customers are seem as parts of inside his company, it means IS can support for core competencies (Magretta, 1998).

The Strategic IT alignment consists of the business IT strategy and IS strategy that starts from the IS strategy. The reason is that IS strategy will get firm performance better than the organizations work without IS Strategy (Leidner, Lo, & Gonzalez, 2010). Thus, the organizations need to define clearly IS strategy and business strategy and they also need strategic planning for the achievement of the organizations goals.

Importance of the study

Thailand is a country which locates in the Southeast Asia near Myanmar, Laos, and Malaysia. Bangkok is the capital of Thailand. Thailand is the world's 50th largest country in terms of total area with approximately 67.6 million people (Bank of Thailand, 2012). In addition, Thailand is a new industrial country. Thailand's economic started to recover in 1999. The growth rate average between 2000 and 2007 were rather increasing annually around 5.3% due to weakening of the US dollar and increasingly strong Thai currency. The GDP in 2011 remained very low at 155,926 baht because the worst floods in Thailand (Bank of Thailand, 2012).

The World Bank, ranking the Gross Domestic Product (GDP) of each country in 2014, found that the first ranking was the United State of America with GDP 17,418,925 millions US dollars, the second was China with GDP 10,380,380 millions US dollars. Indonesia was ranked sixteenth in the world with GDP 888,648 millions US dollars. According to the information of World Bank (2014), Indonesia was the first

in ASEAN with GDP 878,198 millions US dollars. While Thailand was ranked as thirtieth second of the world with GDP 373,804 millions US dollars, however Thailand was the second in ASEAN with GDP 365,564 millions US dollars (World Bank, 2014).

According to the International Federation of Library Association and Institutions (IFLA) World Report: Libraries and Intellectual Freedom, there are two major policies related to access to information and freedom of expression in Thailand, namely;

1) the National Information Policy and,

2) the National Information Technology Policy.

The National Information Policy of Thailand pays attention in developing the effective information systems for creating the organization performance. Many organizations in Thailand invest a lot of money in information system and information technology equipment for management activities and deciding in their firms. Hence, they expected to use information system to cover their investment.

In addition, the National Development Updated Plan (2009-2016) focuses on developing the people around. The balance is the key to develop Thai society to have a moral knowledge and learn by improving the quality of education and learning at all levels and types of education. Thai government's policy need higher education move towards internationalization and ASEAN community will meet in 2015 for involvement with international activities.

There are many researches study about information technology strategy and business strategy alignment for several decades in western context, now it is still interesting topic. (Henderson & Vankatraman, 1999; Kearns & Lederer, 2001; Reich & Benbasat, 2000; Rivard et al., 2006). This topic was ranked as one of the top ten interesting issues for the developed countries (Yayla et al., 2012 ; Chang et al., 2009). The Strategic alignment between IT and organization's business objective is one of an important factor of success in IT investment (Sabherwal, 1999; Luftman, 2000; Kearn & Lederer, 2003 ; Chang et al., 2006; Nash, 2006 ; Chan & Reich, 2007). The theories and the applications of strategic alignment have been studied for more three decades (Parker & Benson, 1998; Henderson & Vankatraman, 1999; Luftman, 2000; Sabherwal & Chan, 2001).

While the theories and applications about resource-based view (RBV) were applied and linked in many disciplines. Preferably, the information system (IS) field applied and linked the relationship between resource-based view and firm performance (Melville, Kraemer, & Gurbaxani, 2004; Oh & Pinsonneault, 2007; Liang & You, 2009). Some studies, the researchers use resource-based view as IS resources or IT capability that relate to firm competency and influence on firm performance (Santhanam & Hartono, 2003; Ravichandran & Lertwongsatien, 2005; Majeed, 2011). There are many studies use strategic IT alignment by linking many theories such as resource-based view, core competency, competitive advantage and organization performance. Most of studies link strategic IT alignment with firm performance (Oh & Pinsonneault, 2007; Leidner et al., 2010; Tallon, 2010) while Kearn and Lederer (2003) and Chen, Mocker, and Preston (2010) link strategic IT alignment with competitive advantage. However some studies analyze the relationship between resource-based view and competitive advantage (Kearn & Lederer , 2003; Ariyawardana, 2003; Wade & Hulland, 2004; Majeed, 2011). Furthermore, many researchers study the relationship between competitive advantage and organization performance (Lopez-Gamero et al., 2009; Majeed, 2011) especially, Rose, Abdullah, and Ismad (2010) assert that the firm resources effect on competitive advantage and enhancing organization performance.

According to the above, there are some studies assert that strategic IT alignment directly influence firm performance (Oh & Pinsonneault, 2007; Leidner et al., 2010; Xiaoying et al., 2008; Tallon & Pinsonneault, 2011). Whilst most of studies insist that resource-based view affect on competitive advantage (Rose et al., 2010; Yin & Yang, 2011; Patas et al., 2012). Moreover, there are some studies show that resource-based view influence competitive advantage and enhance firm performance (Ariyawardana, 2003; Rose et al., 2010).

Before A.D. 2010 there were no empirical studies of strategic IT alignment that link with resource-based view and affect on firm performance. Until a few recent years, there are a few studies analyze the impact of strategic IT alignment affect on competitive advantage and firm performance (Chen et al., 2010; Tallon & Pinsonneault, 2011; Subriadi et al., 2013). For the context of Thailand there are only a few researches on this topic about information technology. In a few recent years, the

result of Jassapalo (2010) found that information technology strategy and business strategy alignment revealed a positive relationship to information technology effectiveness.

In recent years, there are many researches study the relationships between strategic IT alignment, IS capabilities, competency, competitive advantage, and firm performance. Chen et al. (2010) offered the model for create competitive advantage by aligning IS strategy and business strategy which this model had three conceptions of IS strategy including business strategy, organization strategy, and information strategy. Later, Mithas et al. (2011) developed the model for created organization performance by linking information management and organization capability. At the same time, Tallon and Pinsonneault (2011) studied the model of strategic IT alignment by using the agility as mediator variable to linked between strategic IT alignment and firm performance, results asserted that strategic IT alignment influence the firm performance pass through agility. Next time Gerow, Grover, Thatcher, and Roth (2014) examined the relationship between IT-business strategic alignment by analyzed 30 years of alignment researches and used META analysis, the result found that alignment dimension had relationships with performance in three dimension including financial, performance productivity, and customer benefit.

According to the above, the researcher interests to study the strategic IT alignment and resource-based view to contribute the organization performance in Thailand context. This study requires to analyze the joint effect of strategic IT alignment and resource-based view which influence IT support for core competency and organization performance. To the best of our knowledge, there is a few study about this topic in Thailand, it can create new knowledge related to the application of information technology in Thailand.

The best integrated model of strategic IT alignment is expected. It can be employed as a guideline for strategic planning, administration and developing the organization performance through competitive advantage in the future.

1.2 Purpose of the Study

The purposes of this study are (1) to investigate the relationship between strategic IT alignment and IT support for core competencies (2) to study the relationship between IS capabilities (in resource-based view) and IT support for core competencies, and (3) to investigate the relationship between IT support for core competencies and organization performance.

1.3 Research Questions and Hypotheses

Research Questions

This study is comprehensive by following three research questions: (1) Is there a relationship between strategic IT alignment and IT support for core competencies? ; (2) Is there a relationship between IS capabilities and IT support for core competencies?; and (3) Is there a relationship between IT support for core competencies and organization performance?.

Hypothesis

To explore and confirm these three research questions, the below hypothesis were conducted.

To begin with strategic IT alignment, it was developed from two academic studies. First of all, the theory of strategy and information technology are linked together namely strategic IT alignment Model (SAM) which was proposed by Henderson and Venkatraman (1999). This theory focuses on four components including business strategy, organizational infrastructure and process, IT strategy and IS infrastructure and process. It can be considered in two dimensions; 1) Business represents to business strategy and organizational infrastructure and process and 2) Information Technology (IT) represents to IT strategy and IS infrastructure and process. Kearns and Leaderer (2001, 2003) and Wagner et al. (2006) confirmed that the strategic IT alignment revealed and achieved the competitive advantage. Brown et al. (1995) also proposed strategic IT alignment as an important predictor of IT investment that IT investment can gain competitive advantages. Kearns and Lederer (2003) found that the strategic IT alignment process is positively influence on information intensity both the participation of the Chief Information Officer (CIO) in business planning and

participation of the Chief Executive Officer (CEO) in IT planning and the strategic IT alignment influence competitive advantage. Bhatt et al. (2010) proposed the IT infrastructure, which is one of a part the strategic IT alignment, can generate information building affect on organizational responsiveness to offer products and services with distinctive consistent with a customer's need. Indeed, organizational responsiveness is a part of the IS capabilities which are the routines of IS department that is able to deliver IT services for other departments in the organization (Ravichandran & Lertwongsatien, 2005) and IS capabilities use IT to support their activities. It can achieve firm's core competencies and create competitive advantage. Similarly, Subriadi, et al.(2013) studied the relationship between IT strategic alignment, and IT support for core competency, the result found that IT strategic alignment were adopted by aligning IT goals with business goals through IT-base capability influenced IT support for core competency. Regarding the above results, the first hypothesis is conducted by

H1: There is a positive relationship between strategic IT alignment and IT support for core competencies.

The RBV has studied and developed by many academicians and researchers. In 1930, Chamberlin and Robinson mentioned that the resources and capabilities of organization were important factors in competition and can created the profit over the average profit of organization. Chamberlin(1933) defined that the capabilities of firm was the knowledge of organization in technique, reputation and dependability, perception of branding, personal ability in management level, patent and trademark. From 1980, many researchers have studied and developed RBV concepts preferably in strategic management, strategic marketing, competition strategy and other disciplines.

The relationship between RBV and competitive advantage is considered. For instance, Penrose (1959) developed the concept of RBV from Chamberlin (1933) and wrote a book namely "The Theory of the Growth of the Firm", which her theory is the first theory of internal growth by emphasis the internal resources of the firm in economic term. In addition, Penrose (1959) described that a firm is more than an administrative unit and it is as a storage of productive resources and disposal of which between different used and determined by administrative decision. The theory about

competitive in the industry namely “Five Force Model”, which was later proposed by Porter (1980) composes of bargaining power of suppliers, and buyers, threat of new substitutes, threat of new entrants and rivalry among existing firms, which each of the forces can influence on a firm’s ability to complete the other organizations. The five force model combined strategy and operating with IT by setting up a website for communication with the customers, suppliers and partners. All of them are the resources in term RBV of organization which is a factor leading to the advantage in organization performance. This study uses RBV in information system field. Therefore, we identify the pertinent resources in IS resources. There are many researchers defined and divided IS resources in different terms. Nevertheless, this study uses theory that proposed by Day (1994) which considered IS resources from the capabilities of using IT process the jobs in firm. He divided the topology of IS resources into three types of processes; inside-out, outside-In and spanning. Similarly, Mata el al. (1995) suggested five key IS resources as drivers namely customer switching cost, access to capital, proprietary technology, technical IT skills, and managerial IT-skills. Such keys lead to achieve competitive advantages. Moreover, Powell and Dent-Micallef (1997) divided IS resources into three categories; human resources, business resources, and technology resources. All of them came from the same basic concept of IS resources in resources-based view perspectives and Wade and Hulland (2004) agreed with them. Likewise the research of Yin and Yang (2011) revealed that model of IT Capabilities influenced and supported the partnership between IT and business which one part of IT support for core competencies that can created competitive advantage. So, this study uses IS Capabilities substitute to IS resources. The hypothesis based on the above concepts is conducted by

H2: There is a positive relationship between IS Capabilities and IT support for core competencies.

The final research hypothesis correlates with the IT support for core competencies and organization performance which was asserted by both academic researchers and practitioners (Fahy & Smithee, 1999; Ravichandran & Lertwongstien, 2005; Rivard et al., 2006; Chang et al., 2006; Bhatt et al., 2010). The researchers for academic approach such as Fahy and Smithee (1999) proposed the resource-based

model of sustainable competitive advantage. Such model presents that the resource-based view of firm is a term of criteria which created sustainable competitive advantage and competitive advantage establish the organization performance. Similarly, Chang et al. (2006) confirmed that resource-based view is positively effect to firm performance. On the other hand, the practitioners approach, the study was conducted with business firms in Quebec province, Canada by mailing 101 questionnaires to chief-executive officers (CEO). The sampling 96 questionnaires were finally analyzed. The result shows that there are relationship between competitive advantage and the firm performance (Rivard et al., 2006). Referring to the result of Ravichandran and Lertwongstien (2005), they found that IT support for core competencies which came from using IT capabilities and IS resources, pursuit of firm strategies affected on the firm performance. Moreover, Majeed (2011) proposed the conceptual model of relationship between competitive advantage and organization performance. Regarding the above contents, the below hypothesis was thus conducted.

H3: There is a positive relationship between IT support for core competencies and organization performance.

1.4 Conceptual Framework

From the above paragraph and hypothesis, the conceptual framework of this dissertation depicted in figure 1.1 is shown as the following.

This conceptual framework consists of four constructs; strategic IT alignment, IS capabilities, IT support for core competencies and organization performance. Such constructs relate to each other. The strategic IT alignment consists of four variables; business plan and IT plan alignment, IT plan and business plan alignment, CEO participation, and CIO participation (Burn & Szeto, 2000; Reich & Benbasat, 2000; Kearns & Lederer, 2003; Beeson & Mahamid, 2003; Lindow et al., 2010; Tallon, 2010).

In this study, the researcher defines IS Capabilities in term of resource-based view in IS research. Day (1994) proposes one approach of IS resources. He suggests that the capabilities as a subset of firm's resources. He proposes that the firm's capabilities can be categorized into three type of process. Thus, IS Resources

Capabilities consists of three latent variables; Outside-In capabilities, Spanning capabilities, and Inside-Out capabilities (Day, 1994; Wade & Hulland, 2004).

The IT support for core competencies is mediating variable. That is it depends on strategic IT alignment, and IS Capabilities while IT support for core competencies influence the organization performance. This study considers it in three dimensions; IT support for market-access competency, IT support for integrity-related competency, and IT support for functionality-related competency (Powell & Dent-Micallef, 1997; Ravichandran & Lertwongsatien, 2005 ; Liang & You, 2009 ; Yin & Yang, 2011).

The organization performance is dependent variable or a target output which measured from the Quality Management (QM) method that use Baldrige criteria of The Baldrige National Quality Improvement Act of 1987. This criteria measure organization performance from four dimensions including customer performance, financial performance, human resource performance, and organizational effectiveness performance (Mithas et al., 2011). This measurement is similar balanced scorecard of Kaplan and Norton's theory in 1996.

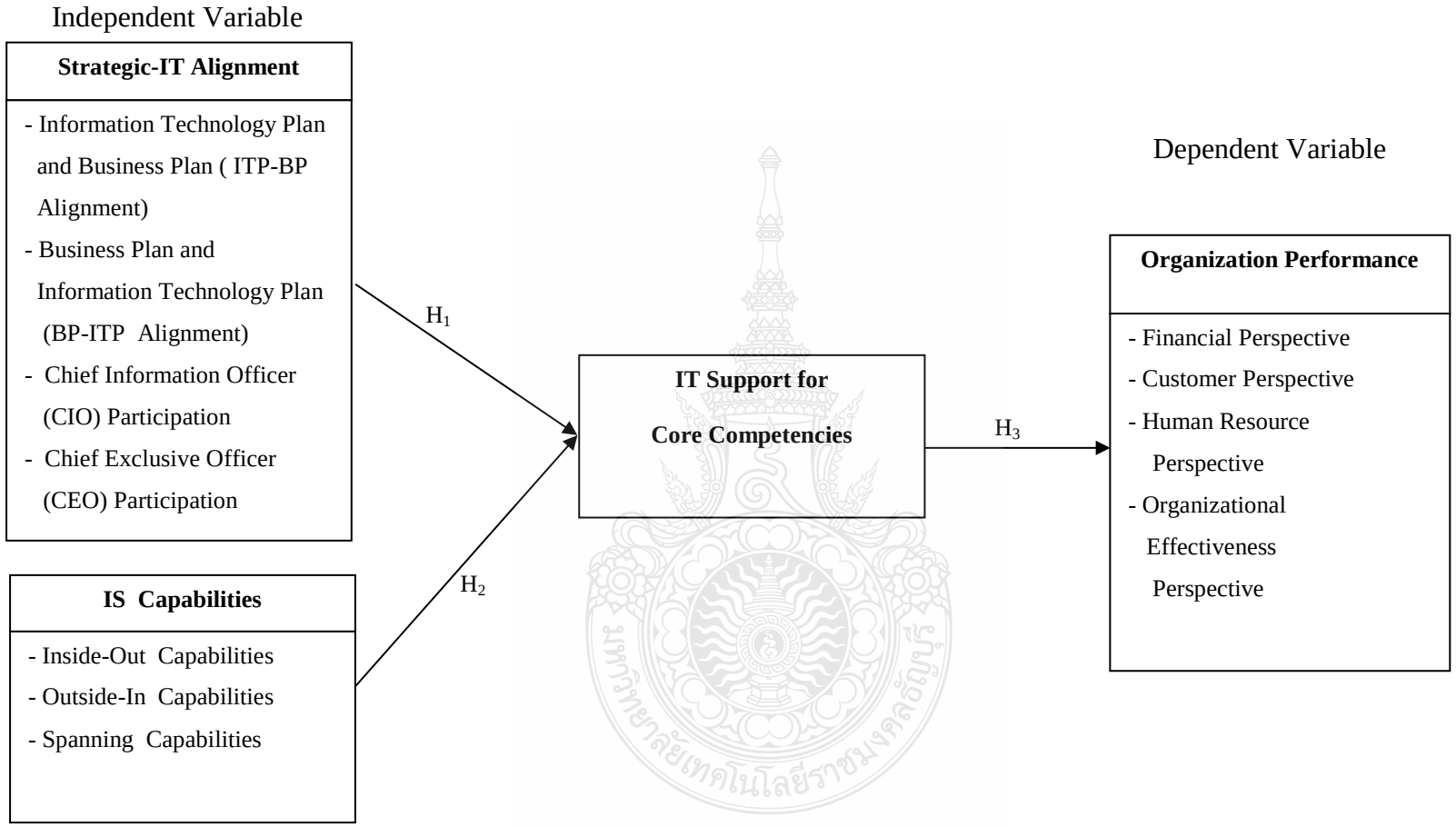


Figure 1.1 Conceptual Framework of the Research

1.5 Definition of Terms

1. Strategic-IT alignment is an integration model between business strategy and IT strategy which can drive the organizational capabilities to leverage technology for achieving the organizational performance and attaining a sustained competitive advantage (Henderson & Venkatraman, 1999). In this research the Strategic-IT Alignment is the level of align the business strategy and information technology strategy in using information technology for operating to achieve objective goal and priority in implementation of the business strategy (Reich & Benbasat, 1996; Chan et al., 1997; Teo & King, 1997; Henderson & Venkatraman, 1999; Burn & Szeto, 2000; Kearns & Lederer, 2003; Beeson & Mahamid, 2003; Lindow, et al., 2010; Tallon, 2010). Therefore, Strategic-IT alignment is the process that IT and business administration shared environmental knowledge, resources, and align business plan and IT plan for their activities to achieve the organization performance (Kearns & Lederer, 2003; Preston & Karahanna, 2009; Tallon & Pinsonneault, 2011). So, we measure the Strategic-IT Alignment with four constructs: business plan and IT plan alignment, IT plan and business plan alignment, CEO participation, and CIO participation (Kearns & Lederer, 2003).

2. The IS capabilities are IS resources that include all the properties or resources of the organization in resource-base view which include assets, capabilities, organization processes, organization characteristic, attributes, computer hardware, software, knowledge and know-how that an organization can use to develop strategies and control to implement the efficient improvement or achieve efficiency strategies (Barney, 1991; Rivard et al., 2006; Liang & You, 2009; Grant et al., 2010). This study uses the typology proposed by Day (1994) and Wade and Hulland (2004) agreed with him. They categorized IS resources by considering firm capabilities which can be sorted out into three type of process including inside-out capabilities, outside-in capabilities, and spanning capabilities.

2.1 Inside-Out Capabilities are activities which are deployed from inside the firm for responsiveness to market requirement and opportunities and focus on the internal processing of organization (e.g. technology development, cost effective).

2.2 Outside-In Capabilities are externally oriented placing an emphasis on anticipating market requirement creating durable customers relationships and understand competitor (e.g. market responsiveness, managing external relationships).

2.3 Spanning Capabilities involve both internal and external analysis whichneed to integrate the firm's inside-out and outside-in (e.g. managing, IS/business partnership, IS management and planning).

3. Ravichandran and Lertwongsatien (2005) proposed that IT support for core competencies are basic for firm to compete in market. Hamel (1994) divided core competencies of firm into three parts; market-access, integrity-related, and functionality-related competencies. These competencies are capabilities of firm use and integrate business process in market-access to close and identify their customers' need for efficient manufacturing operation, streamlined supply chain and offering unique products and services with distinctive customer benefits. IT support for Integrity-Related Competencies are organization's abilities to offer reliable product and services and deliver them with best convenience. While IT support for functionalities-Related Competencies are organization's abilities to offer unique products and services with dominant customer benefits. These competencies reflect strength in product development and innovation potential of a firm by using IS resources and focusing in its IT deployment (Hamel, 1994; Powell & Dent-Micallef, 1997; Ravichandran & Lertwongsatien, 2005; Rivard et al., 2006; Liang & You, 2009 ; Yin & Yang, 2011).

4. The organization performance is an objective output term, it is a multidimensional construct that measures the results of organization's operation for achieve organization's goal that use Baldrige criteria which measure from four perspectives including organization performance in customer perspective, organization performance in financial perspective, organization performance in human resource perspective, and organization performance in organizational effectiveness perspective (Mithas et al., 2011).

4.1 Organization performance in customer perspective is the summary of the organization's key customer-focus results that measures from the levels and trends of customer satisfaction, customer relation, positive referral and product and services performance (Mithas et al., 2011).

4.2 Organization performance in financial perspective is the summary of the organization's key financial and marketplace performance results that measures indicator of financial performance about trends in return on investment, profitability, liquidity, market share, and business growth (Mithas et al., 2011).

4.3 Organization performance in human resource perspective is the summary of the organization's key human resource results that measures indicator of human resource performance in employee satisfaction, employee development, job rotation, work layout, and organization learning (Mithas et al., 2011).

4.4 Organization performance in organizational effectiveness perspective is the summary of the organization's key indicator that measures the achievement of organizational effectiveness from the operational performance of important design, production, delivery business and support processes for example, productivity and supplier performance (Mithas et al., 2011).

Thus, this study will summarized the definition of all variables in Table 1.1 and Table 1.2.

Table 1.1 Definition of Constructs in this study

Constructs	Definition	Source
Strategic IT Alignment	Strategic IT Alignment is an integration between business strategy and IT strategy in using information technology for operating to achieve the organization goals. It measures from four dimensions : 1) Business Plan and IT Plan Alignment 2) IT Plan and Business Plan Alignment 3) CEO Participation 4) CIO Participation.	- Henderson &Venkatraman, 1999 - Kearns and Lederer , 2003 - Lindow et al., 2010
IS Capabilities	IS Capabilities are IS Resource which are all the assets of organization including capabilities, Organization processes, attributes, computer hardware, software, knowledge and know-how which an organization can use to implement and management for achieving firm performance. IS Capabilities measure from three types of Firm capabilities below. 1) Inside-out Capabilities 2) Outside-in Capabilities 3) Spanning Capabilities	- Day. 1994 - Wade & Hulland, 2004 - Ross et al., 1996
IT Support for Core Competencies	IT Support for core competencies mean usage IT resources to support core functionalities of organizations for improving and enhance their operation. IT Support for core competencies measure from three visions below. 1) IT Support for market-access competencies. 2) IT Support for integrity-relate competencies. 3) IT Support for functionalities -related competencies.	Ravichandran & Lertwongsatien , 2005

Table 1.1 Definition of Constructs in this study (Cont.)

Constructs	Definition	Source
Organization Performance	The Organization Performance is the result of activities of the organization which is important measurement for the successful and achievement the Organization's goals. The Organization Performance measures from four dimensions : 1. Organization performance in customer perspective 2. Organization performance in financial perspective 3. Organization performance in human resource perspective 4. Organization performance in Organizational Effectiveness perspective	- Mithas et al., 2011

Table 1.2 Definition of variables of Each Construct

Construct	Variables	Definition	Source
Strategic IT Alignment	BP-ITP alignment	The BP-ITP alignment means the business plan reflects the IT plan by CEO increased knowledge about IT capabilities and opportunities for implement the business strategies with the appropriate technologies.	- Kearns and Lederer, 2003
	ITP-BP alignment	The ITP-BP alignment means the IT plan reflects the business plan by CIO consider and use the business plan goals and strategies to improve the IT plan goals and strategies.	- Teo & King, 1997 - Kearns and Lederer, 2003
	CEO participation	CEO participation means the chief executive officer participates in IT planning by regular contacts the CIO, collaboration in an IT steering committee, knowledge about IT opportunities and use of IT in firm.	- Jarvenpar & Ives, 1991 - Kearns and Lederer, 2003
	CIO participation	CIO participation means the chief information officer participates in business planning by collaboration in business meeting, formulation of goals, frequent informal contacts with CEO and other member of top management.	- Lederer & Mendelow, 1989 - Kearns and Lederer, 2003
IS Capabilities	Inside-Out Capabilities	Inside-Out Capabilities are processes and actions that are deployed from inside the firm for response to market requirement and opportunities.	- Day, 1994 - Wade & Hulland, 2004

Table 1.2 Definition of variables of Each Construct (Cont.)

Construct	Variables	Definition	Source
	Outside-In Capabilities	Outside-In Capabilities are external oriented capabilities which emphasis on anticipating market requirements and creating lasting customer relationships, and understanding competitors.	- Day, 1994 - Wade & Hulland, 2004
	Spanning Capabilities	Spanning Capabilities interlace both internal and external oriented. So, these capabilities are integrated the firm's Inside-Out Capabilities and Outside-In Capabilities.	- Day, 1994 - Wade & Hulland, 2004
IT support for core competencies	IT support for Market-access competencies	IT support for Market-access competencies are organization's abilities to identify customer's needs and respond in timely manner.	- Ravichandran & Lertwongsatien,2005
	IT support for Integrity-Related competencies	IT support for Integrity-Related Competencies are organization's abilities to offer reliable product and services and deliver them with best convenience.	- Ravichandran & Lertwongsatien,2005
IT support for core competencies	IT support for functionalities-Related competencies	IT support for functionalities-Related Competencies are organization's abilities to offer unique products and services with dominant customer benefits.	- Ravichandran & Lertwongsatien,2005

Table 1.2 Definition of variables of Each Construct (Cont.)

Construct	Variables	Definition	Source
Organization Performance	Customer Performance	Customer Performance is the summary of the organization's key customer-focus results that measures from the levels and trends of customer satisfaction, customer relation, positive referral and product and services performance.	Mithas et al.,2011
	Financial Performance	Financial Performance is the summary of the organization's key financial and marketplace performance results that measures indicator of financial performance about trends in return on investment, profitability, liquidity, market share, and business growth.	Mithas et al.,2011
	Human Resource Performance	Human Resource Performance is the summary of the organization's key human resource results that measures indicator of human resource performance in employee satisfaction, employee development, job rotation, work layout, and organization learning.	Mithas et al.,2011

Table 1.2 Definition of variables of Each Construct (Cont.)

Construct	Variables	Definition	Source
	Organizational Effectiveness Performance	Organizational Effectiveness Performance is the summary of the organization's key indicator that measures the achievement of organizational effectiveness from the operational performance of important design, production, delivery business and support processes for example, productivity and supplier performance.	Mithas et al.,2011

1.6 Delimitation of the Study

Some noteworthy delimitations of the study are addressed. The first delimitation consists the exterior variables which may influence the IT support for core competencies, and organization performance such as IS quality, IT investment The second delimitation of this study focuses on the organization performance which are large organizations. The third delimitation concerns with samples that are selected from the organizations in listing of the Stock Exchange of Thailand (SET). Furthermore, the study uses cross-sectional data and the organization performance measure from subjective by using Likert scales. The final delimitation is finding the best model for contribution the organization performance from strategic IT alignment, IS resource capabilities, and usage of IT for support core competencies.

1.7 Structure and Contents

The structure of this study is organized in five chapters are as follows. Chapter one provides the conceptual perspective i.e. background and statement of the problems, purpose of the study, research questions and hypothesis, conceptual framework, delimitation of study, structure and contents, and expected benefits to be derived from the research. Chapter two identifies and proposes the literature review that relates to this study. A comprehensive literature review is conducted in order to establish a basis for this study found on principles, theories and researches of information technology, strategic IT alignment, IS resources Capabilities in term of resource-based view and IT support for core competencies which influence the organization performance and the measure of organization performance. Chapter three provides the methodology and description of the research which consists of model/theoretical framework, research design, population, sampling, data gathering, research instrument and data analysis. Chapter four presents and interprets the results of data analysis from tool, and chapter five summarizes the results and concludes by compares our results with the theories and other researches.

CHAPTER 2
REVIEW OF THE LITERATURE

The objective of this chapter is to provide read with a basic understanding of strategic IT alignment, IS resources capabilities, IT support for core competencies, and organization performance. The review of IT support for core competencies which is the consequence of the strategic IT alignment and IS resources capabilities (in term of resource-based view: RBV) are then discussed, following by the review of organization performance which is an outcome of strategic IT alignment and IS resources capability. Then, the overviews of both academic and practitioner approaches between strategic IT alignment and IT Support for Core competencies, IS capabilities and IT Support for Core competencies follow by IT Support for Core competencies and organization performance are discussed. Furthermore, the relationships among strategic IT alignment, IS capabilities (in term RBV), and IT Support for Core competencies are discussed. Finally, the review of the organization performance which is an interested area of this study is mentioned.

2.1 Strategic IT Alignment

Information Technology (IT) and Information System (IS) are not new disciplines. They always subsisted in the organization (Galliers et al., 1999). Grant et al. (2010) describes that IT and IS are procuring for the arrest, storage, processing and transmission of information, enhanced decision making and used as a competitive weapon. However, IT is different from IS. Information systems are viewed as procedures which have functions to collect, process, store and communicate for supporting the activities of the enterprise (Grant et al., 2010). Information Technology implies to the microprocessor-based technology. It is used to store, process, recall and transfer information and which may come from a part of network. The definition of information system is the combination of hardware, software, infrastructure and trained personnel in order to accommodate planning, control, coordination, and decision making (businessdictionary.com). Moreover, UKAIS (1999) defines that information systems are the means by which people and organizations, utilize technologies, gather,

process, store, use and disseminate information. According to SEI Report, Glossary defines that information system (IS) is any combination of information technology and people's activities using that technology to support operations, management, and decision making. In addition, Kroenke (2008) notes that information system is frequently used to refer to the interaction between people, algorithmic processes, data and technology that an organization always uses to support business processing. Furthermore, Alter (n.d.) argues for an information system as a special type of work system which humans or machines perform work using resources (including ICT) to produce specific products or services for customers. Grant et al. (2010) compares IT/IS with a horse racing which a jockey rides and controls a horse. That is IT represents the horse and IS represents the jockey. The jockey (IS) uses the horse (IT) and plans to run the race for exceptional way. They uses his rein and stirrups to communicate with the horse to indicate when he needs to go faster, slow down. In this analogy, Information Management (IM) is the owner and trainer of the horse, who develops a business plan and determine when to run the horse in the racing and use with a jockey. This view shows that the Information System (IS) is administrator who needs achieve for the business goals by using the Information Technology (IT) as his tool on the balance between the technology, the IS and the business, which is namely IT/IS alignment. The process of these brings a degree of strategic intent and coordination to the business activities (Grant et al.,2010).

To begin with strategy means the planned and realized set of actions that a firm takes to achieve its goals or strategy is a coordinated set of actions to fulfill objective, purposes and goals (Rothaermel, 2013). The other definition of strategy is the plan that describes the goal of the firm to direct actions in order to pursuit to gain and encourage the competitive advantage (Porter, 1980). In pragmatically, the strategy is applied in many disciplines for instance; management, marketing, sport games, business firms or industry organizations and information technology. Porter (1980) emphasizes that the strategic management is the manager’s theories. It is an integrative management field that combines analysis, formulation and implementation in the quest for competitive advantage (Porter, 1980; Rothaermel, 2013). Thus, this section summarized that the strategy is the master plan of firm which consisted of the set of

activities that a firm must take and run to achieve the objective and goals of the organization.

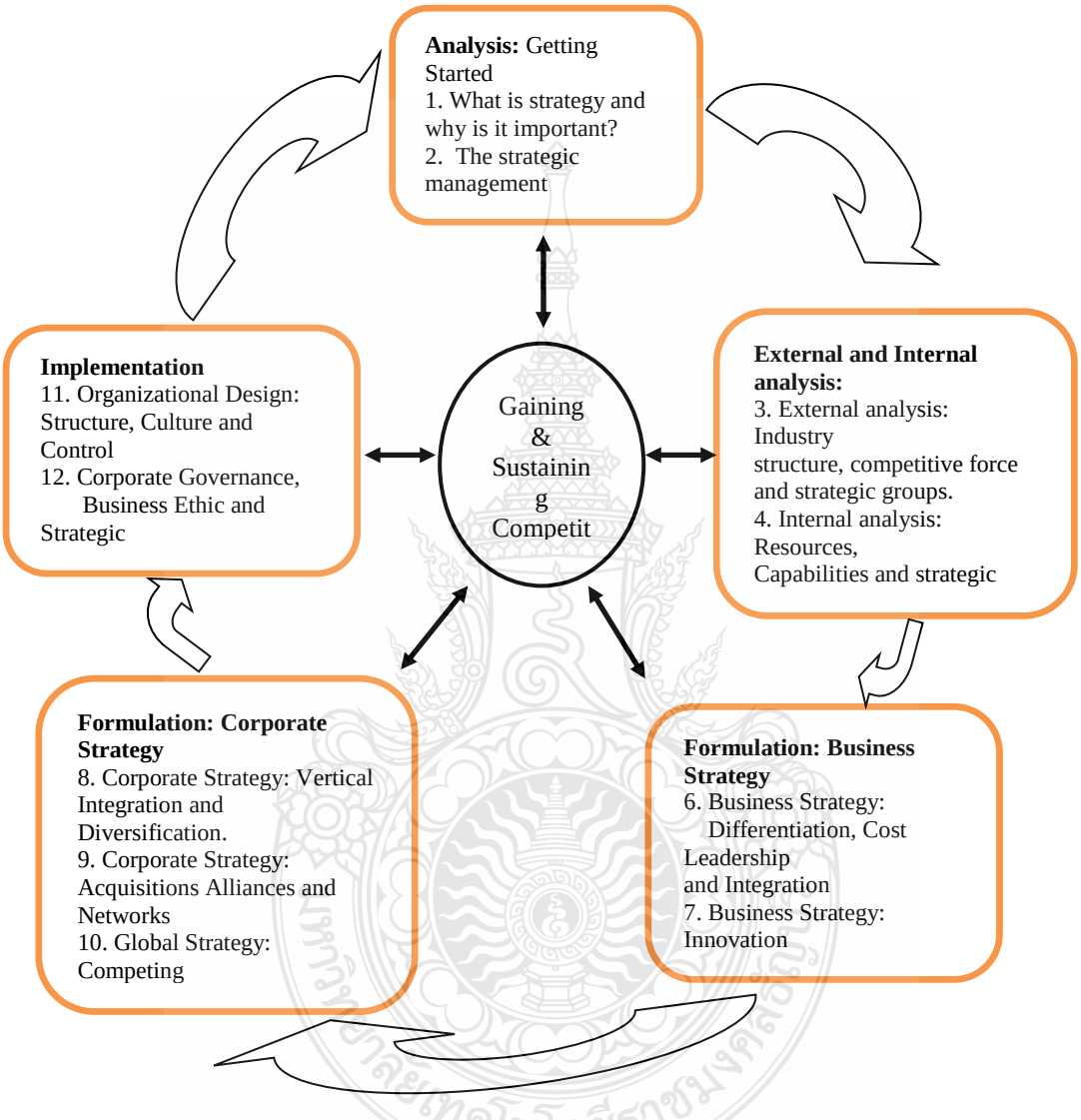


Figure 2.1 The AFI Strategy Framework*
(*Rothaermel. Frank T., 2013)

This framework links the three independent management tasks, analyze, formulate and implement. It starts at strategy analysis (A) which the manager knows about the strategic management process that are the organization vision, mission and value. External analysis (E) means what effects force in the external environment have

on strategy and competitive advantage. Internal analysis is known about what effects do our internal resources and capabilities have on strategy and competitive advantage, and how we can measure firm performance. The strategy formulation (F) means how and where we should compete competitors from our business strategy such as make different competitor by usage cost leadership. The strategy implementation (I) is the organizational design which the manager knows how to formulate our strategy for practice and activities that covers cooperate governance, business ethics and strategic leadership (Rothaermel, 2013).

Considering the present, most of organizations are new business models because they use information technology and information system to operate, manage, do their duties, activities, service and connect their customers, suppliers and staff including administrator's decision. Information technology department is one part of organization which the operation must have strategic plan as a guideline for operating and service other department in the organization.

The IS strategy framework used in the organization is called the Information Systems Strategy Triangle, because there are relationships of IS strategy, business strategy and organization strategy (Pearlson & Saunders, 2009).

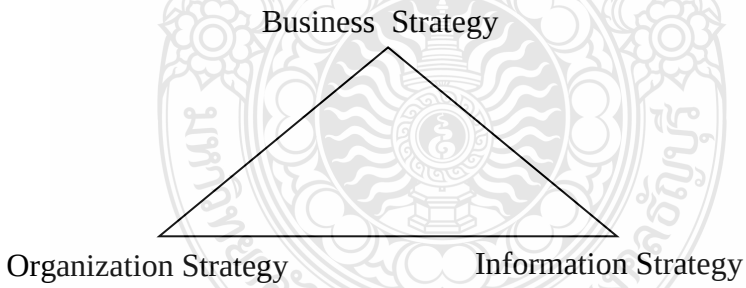


Figure 2.2 The Information Systems Strategy Triangle*
*(Pearlson & Saunders, 2009)

The organization strategy is the firm's plan which is the creation, implementation and evaluation of decision within an organization. It enables to achieve it's long term objective which specifies the organization's mission, vision objective and develop policies and plan which can create to achieve the organization goals (Pearlson & Saunders, 2009).

The business strategy is a long term plan that articulation a main management function which responds to market forces, customer demands and organizational capabilities (Pearlson & Saunders, 2009).

The IS strategy is the plan which an organization uses to provide information technology such as hardware, applications and other IS components for service every department and supporting business strategy and organization strategy (Pearlson & Saunders, 2009).

From above, the three strategies have relation to each other. If we change business strategy, it will effect on organization strategy and IS strategy. So it is necessary to align these strategies in harmony for achieving the organization goals, and can lead to superior performance (Oh & Pinsonneault, 2007; Pearlson & Saunders, 2009; Tallon & Pinsonneault, 2011).

Alignment is defined as "the proper positioning or state of adjustment of parts, or an arrangement of groups or forces in relation to one another" (Mirriam-Webster Dictionary Online). Alignment is multifaceted aspects that require an inter-connected web of strategic leadership activities, IT strategic planning, IT governance, communications, and measurement/assessment (Reich & Benbasat, 2000; Tallon, 2010; Tallon & Pinsonneault, 2011). The purpose is to ensure that an institution and its IT organization uphold parallel strategies, plans, and outcomes (Tallon & Pinsonneault, 2011).

Alignment is the adjustment of an object in relation with other objects, or a static orientation of some objects or a set of objects in relation to others (Reich & Benbasat, 2000; Insights, 2009). The other definition, alignment is corporate linking of organizational goals with the employees' personal goals. It requires common understanding of purposes and goals of the organization, and consistency between every objective and plan right down to the incentive offers (Kearns & Lederer, 2003; businessdictionary.com, 2013). Strassmann (1998) defined that alignment is the capacity to demonstrate a positive relationship between information technologies and the accepted financial measures of performance. The alignment is in contrast to what is often experienced in organizations: IT and business professionals are unable to bridge the gap between themselves because of differences in objectives, cultures, and

incentives and a mutual ignorance for the other group's body of knowledge. The alignment of the various business units is done within a company in order to ensure that the units are helping the company to achieve a centralize set of goals(Kearns & Lederer, 2003 ; Tallon & Pinsonneault, 2011). This is done by reviewing and optimizing the operations of the business unit (BusinessDictionary.com, 2013). So, we conclude the that alignment is an adjustment of the organization's goals by linking organization's goals with IT goals, understanding of purposes and goals of the organization and consistency between every objective and plan to prefers motivating the employees take action for achieving organization's goals.

Strategic IT alignment is an important factor to consider the overall value chain in technology development projects as the challenge for the value creation is increasing with the growing competitiveness between organizations that has become evident (Oh & Pinsonneault, 2007; Bird, 2010; Tallon & Pinsonneault, 2011). The concept of value creation through technology is heavily dependent upon the alignment of technology and business strategies. While the value creation for an organization is a network of relationships between internal and external environments, technology plays an important role in improving the overall value chain of an organization (Oh & Pinsonneault, 2007; Grembergen & Haes, 2010). However, this increase requires business and technology management to work as a creative, synergistic, and collaborative team instead of a purely mechanistic span of control. Technology can help the organization improve competitive advantage within the industry that it resides and generate superior performance at a greater value (Strassmann, 1998; Bird, 2010).

According to the above mentioned on the strategic IT alignment which the root of it comes from Henderson and Venkatraman's theory which was developed in 1993 namely Strategic Alignment Model (SAM). After that they rewrote this theory to define the strategic-IT alignment. It is an integration model between business strategy and IT strategy which can drive the organizational capabilities to leverage technology for achieving the organization goals and attaining a sustained competitive advantage (Henderson &Venkatraman, 1999; Grant et al.,2010). The strategic IT alignment is an organizational learning process that combines business and IT knowledge in order to support business objectives (Reich & Benbasat, 2000). The strategic IT alignment

consists of four components, business strategy, IT strategy, organization infrastructure and IT infrastructure (Henderson &Venkatraman, 1999; Grant, et al., 2010). The user can use the conceptual strategic IT alignment model in two dimensional terms: strategic fit between the internal and external domain and functional integration between the business and IT domain (Henderson &Venkatraman, 1999).

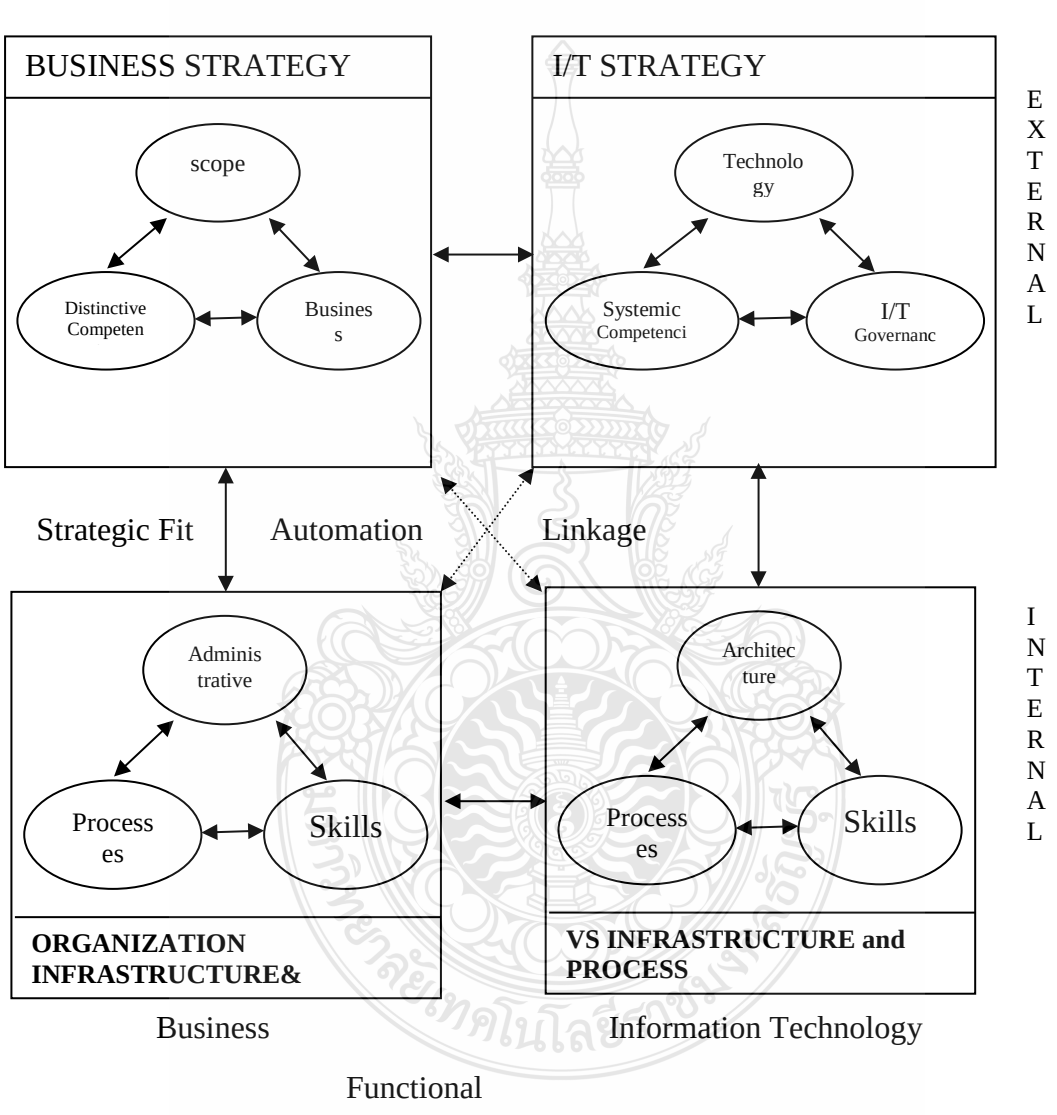
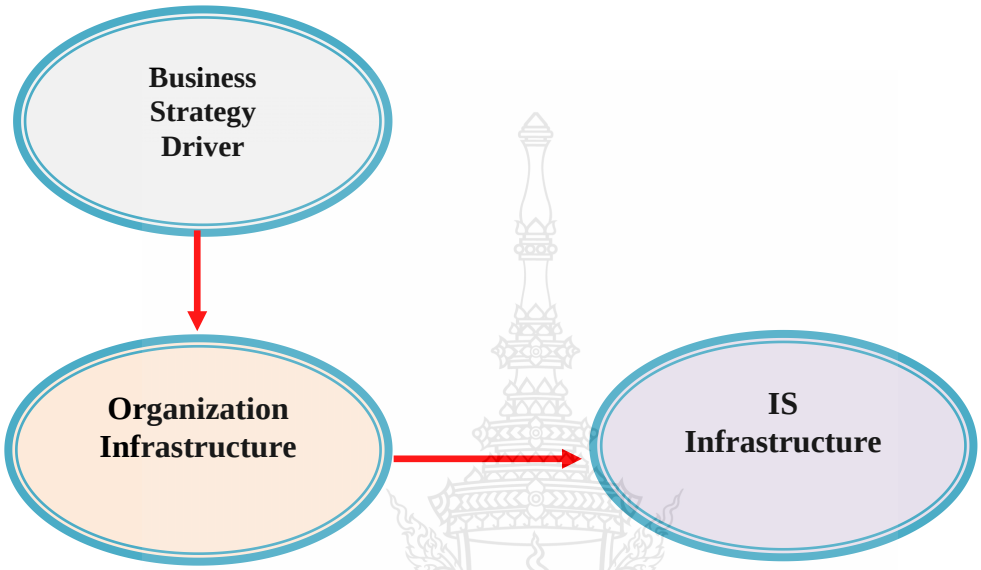


Figure 2.3 The Strategic Alignment Model (SAM)*
(*Henderson & Venkatraman, 1999)

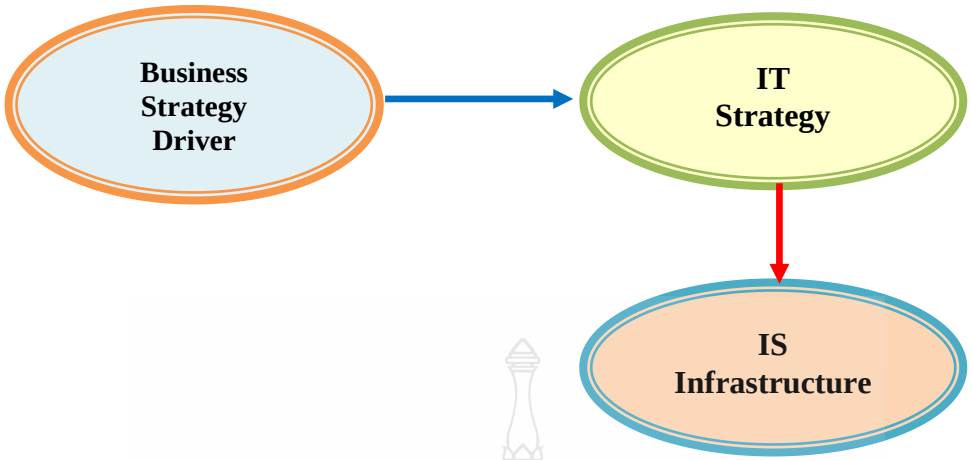
The Figure 2.3 shows the strategic alignment model which has four components. Each component can link together when we use business strategy and IT strategy as the driving forces. Therefore, we explain this figure in four dominants alignment perspective as below.



Role of Top Management: Strategy Formulator
Role of IS Management: Strategy Implementer
Performance Criteria: Cost/Service Center

Figure 2.4 Perspective One: Strategy Execution

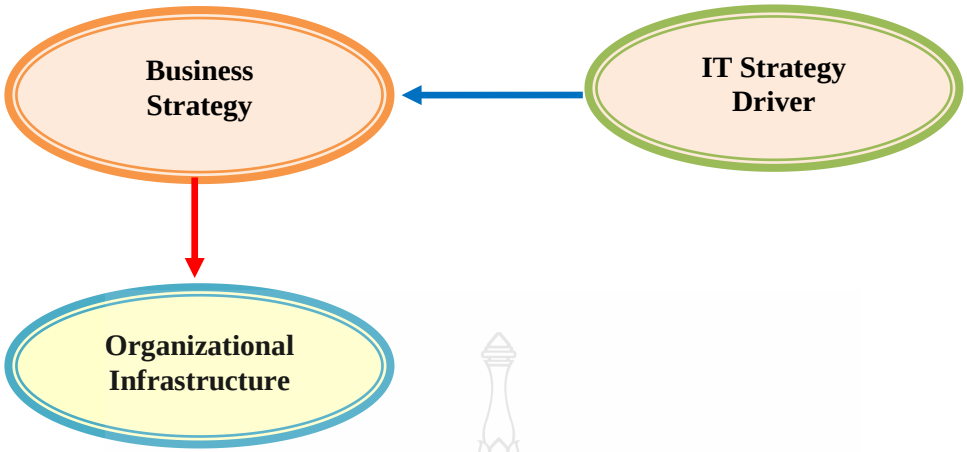
This alignment perspective is anchored on the notion that business strategy has been articulated and is the driver of both organizational design choices and IS infrastructure. This is important to identify the special role of management to make this perspective success. It focuses at the Top Management and should play the role of Strategy Formulator to choices pertaining to business strategy. Chief Information Officer (CIO) or IS Manager should be chosen Strategy Implementer, one who efficiently and effectively designs and implement the require IS infrastructure and process that support the chosen business strategy. The performance Criteria for assessing the IS function within this perspective are base on financial parameters reflecting a cost service center (Henderson &Venkatraman, 1999).



Role of Top Management: Technology Visionary
Role of IS Management: Technology Architecture
Performance Criteria: Technology Leadership

Figure 2.5 Perspective Two: Technology Transfer

This alignment perspective involves the assessment of implementing by chosen business strategy through appropriate IT- strategy and the required IS infrastructure and process. This perspective is not constrained by the organization design, but it identifies the best possible IT competencies through appropriate positioning in IT marketplace and identifying the corresponding internal I/S architecture. The performance criteria is based on Technology Leadership. It often uses a bench marking approach to assess the positioning of firm in the IT marketplace. For example, United Service Automobile Associate (USAA) where is a leading US insurance company, confirmed their business strategy of low cost insurance delivery via telemarketing (Henderson &Venkatraman, 1999).



Role of Top Management : Business Visionary
Role of IS Management : Catalyst
Performance Criteria : Business Leadership

Figure 2.6 Perspective Three: Competitive Potential

This alignment perspective allows the adaptation of business strategy via emerging IT capabilities. This perspective succeeds from Business Visionary. It means the manager in the top management articulates how the emerging IT competencies get from IT strategy and functionality of their organization as well as changing governance patterns in the IT marketplace. A CIO or IS manager can catalyst one who identifies and interprets the trends in the IT environment to assist the business managers to understand the potential opportunities and threats from an IT perspective. The performance criteria is based on business Leadership with qualitative and quantitative measurement pertaining to product leadership such as market share, growth or new product introduction (Henderson &Venkatraman, 1999).

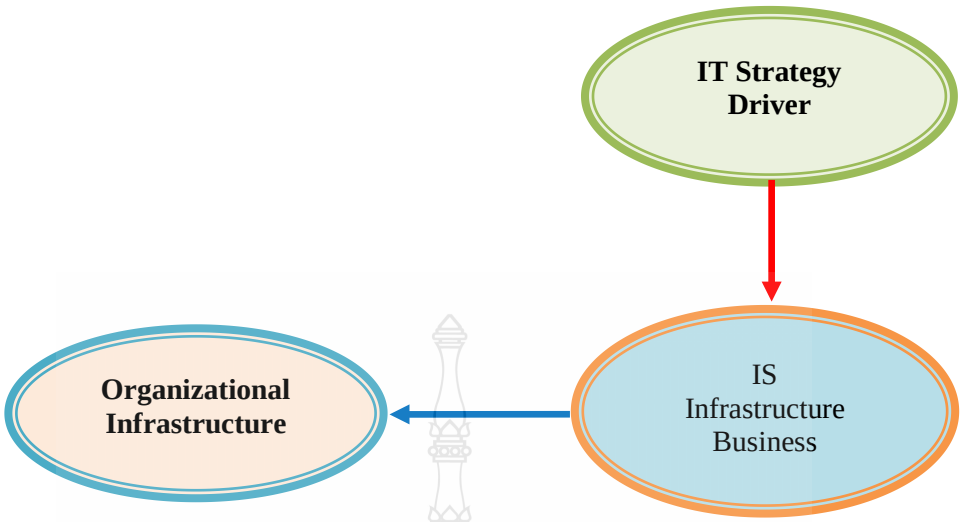


Figure 2.7 Perspective Four: Service Level

This alignment perspective focuses on how to build a world-class IS service organization. This requires an understanding of external dimension of IT strategy with corresponding internal design of the IS infrastructure and process. This strategy fits for IT. It creates the capability by analytical methodologies even partially reflecting and meet the need of I/S customers products and services. This perspective succeeds from prioritize, it means the one who articulates how best to allocate the scarce resource both within the organization and in the IT marketplace. A CIO or IS manager is one of the executive leadership with the specific tasks of making the internal service business succeed within the operating guideline from top management. The performance criteria is based on customer satisfaction which is obtained with qualitative and quantitative measurements using internal and external benchmarking (Henderson &Venkatraman, 1999).

The organizations can achieve success and goals, they have to realign and maintain closely both their IT strategy alignment and business strategy alignment (Burns & Szeto, 2002). Broadbent and Weill (1993) said that the effective of alignment

between business and IT strategies has occurred where the strategy creation process increased and resultant strategies implementation responds, and Kearns and Lederer (2003) agree with them.

Beeson and Mahamid (2003) surveyed strategic alignment indicator in manufacturing companies in South-West of England by mailing questionnaires to 115 executive managers, 41 of the population completed the questionnaires. The finding revealed that the critical success factors that affect on the strategic alignment were business and IT strategy alignment. IT and business managers share a vision of how IT support the business strategy. Business managers have active sponsorship and leadership in IT development projects joint with IT manager. The last finding was IT and business managers are satisfied with their ability to communicate and negotiate with each other.

Kearns and Lederer (2003) made a postal survey with random sample of 1200 firms, including all industries except government and non profit institutions. They sent directly to CIOs of firms with at least $75 million in annual revenue. Questionnaires are used as instruments to collect data. The final number of questionnaires collected to be analyzed is 161. The input construct is information intensity on knowledge sharing which is classified into two types. First, the knowledge transfers when the CIO participated in business plan by attendance at business planning meetings, formulation of business goals, frequency access to CEO and informal contacts with other members of top management (Leaderer & Mendelow, 1989a; Sambamurthy & Zmud, 1999; Kearns & Lederer , 2003). Second, the knowledge transfers when the CEO participated in IT plan by contacts with CIO. It involves on an IT steering committee, knowledge of competitors' using IT within firm and treatment of IT as a strategic resource (Jarvenpaa & Ives, 1991; Sabherwal, 1999; Kearns & Lederer, 2003). The result revealed that information intensity is an important precedent factor and affects strategic IT alignment which was positively and significantly associated with the participation of the CIO in business planning and the participation of the CEO in IT planning. The strategic IT alignment is the best factor that explains the competitive advantage which the alignment between IT plans and business plan are significantly related to the usage of IT for competitive advantage.

Cumps et al.(2006) studied strategic IT alignment to analyzed the context dependency of business ICT alignment, and to summarized some practical guidelines for managers in IT field. They collected data by using web-based questionnaire from the 641 different industries in seven European countries. The results found that the ICT strategies influenced the alignment performance, the organization that created specific ICT management by using ICT resources as a real business enabler were achieved better performance score which leaded to competitive advantage.

Oh and Pinsonneault (2007) studied strategic IT alignment by compare two conceptual (RBV and contingency-base) and two analytical (Linear and Nonlinear) to measured the organization performance. They surveyed by collecting data from CEO and CIO of 110 firms , the results revealed that RBV and contingency-based approaches the resource-centered and contingency based approaches could explicate the impact of IT applications on firm performance. Alignment between business strategy and information systems strategy could reduce cost. Moreover, the firm that were high-end strategic alignment could lead to superior performance more than other firm that were low strategic alignment.

Xiaoying et al. (2008) measured business performance from Henderson and Venkatraman' s theory by aligning business strategy and information system strategy and integrated with information system performance. They collected 126 questionnaires from MBA and EDP students who were CEO, or top manager in different industries in China. The results revealed that business strategy had no direct effect on business performance, while IS strategy had direct effect on business performance, and strategic alignment influenced business performance. They summarized that strategic alignment was a better predictor of business performance than business strategy or IS strategy alone.

Jassapalo (2010) also studied about alignment. His finding revealed that the score level of information technology and business strategies alignment were 10.72 out of 20 which were accounted for 53.60%. The relationship between information strategy and business strategies alignment depended on three factors; 1) the chief information and chief executive officers' participation in the planning of both information technology strategies and business strategies 2) the chief executive officers' awareness

of the significance and support of IT and 3) knowledge management and communication between the chief information and chief executive officers. There was positive relationship between the alignment and information technology effectiveness.

At the same time, Chen et al. (2010) reviewed and proposed the model for created competitive advantage by aligning IS strategy and business strategy for strategic management both IS function plan and used of IS to support business plan as an organizational perspective on the firm's investment. They proposed three conceptions of IS strategy including (1) IS strategy as the use of IS to support business strategy; (2) IS strategy as the master plan of IS function; and (3) IS strategy as the shared view of the IS role within the organization. Moreover, they confirmed their study that both chief information officers and senior business executives of organizations which used IS strategy as a diagnostic tools by usage IT supported the organization's functionality, they had potential and can create competitive advantage for their organization.

Later, Tallon and Pinsonneault (2011) purposed to test the strategic IT alignment influence the firm performance by using the agility as the mediator variable to link between the strategic IT alignment and firm performance. They use IT flexibility and environmental volatility as the mediating effect of the model. They use data from matched survey of IT and business exclusives from 241 firms by using questionnaires. The results revealed that strategic IT alignment has no direct effect to firm performance but it indirect on firm performance through agility as mediator that environmental volatility positively moderates the link between agility and firm performance.

Afterwards, Subriadi et al. (2013) measured firm performance by linking Resource-based View theory, IT strategic alignment rules were adopted in effort to align IT goals with business goals through IT-based Capability, and IT Support for Core Competence. The results revealed that IT resources had significant effected on IT capability, and performance. IT capability had significant effected on IT Support for Core Competence, and IT Support for Core Competence had effected on performance. Moreover, they asserted that IT resources were materials to developed firm ability by creating IT-Base capability from adopted IT strategic alignment by aligning IT goals with business goals.

The recent year, Gerow et al. (2014) examined the relationship between IT-business strategic alignment by analyzed 30 years of alignment researches and used a Meta-Analysis. The results found that the alignment dimension (intellectual, operational, and cross domain) had relationship with the different performance types (financial performance, productivity, and customer benefit) and with many of the other constructs. This study contributed the literature by explaining the relationships between alignment and performance outcomes and presenting insight the sources of both consistency and inconsistency research, and guideline to research in the future. The summary of review is shown in Table 2.1.

Table 2.1 Review Literature of Strategic-IT Alignment

Authors	Title	Constructs	Finding
Kearns & Lederer (2003).	A Resource-Based View of Strategic IT Alignment: How Knowledge Sharing Creates Competitive Advantage.	-Alignment of the Business Plan with IT Plan - Alignment of the IT Plan with Business Plan - The CEO Participates in IT Planning - The CIO Participates in Business Planning	The purpose of this study was to examined how strategic IT alignment can built supplemented organizational strategies that effect competitive advantage. They built the conceptual model from six constructs, started with information intensity of the value chain which were level of accuracy, frequency of updates, and scope of usage information for organization operation which were resources for firm in resource-based view. The four factors were strategic IT alignment, the last factor was competitive advantage. The results revealed that the information intensity was an important antecedent to strategic IT alignment between factor s plan were significantly related to the usage of IT for competitive advantage.
Cumps et al. (2006).	An Empirical Study on Business/ICT Alignment in European Organizations.	- Business Strategies - ICT Strategies	The purpose of this study had two subject matter 1) analyzed the context dependency of business ICT alignment, and 2) to summarized some practical guidelines for managers in this field. They collected data by using web-based questionnaire from the different industries in seven European countries. The respondents were CIO or head ICT manager.The results found that the ICT strategies influenced the alignment performance, the organization that created specific ICT management by using ICT resources as a real business enabler were achieved better performance score which leaded to competitive advantage.

53

Table 2.1 Review Literature of Strategic-IT Alignment (Cont.)

Authors	Title	Constructs	Finding
Oh and Pinsonneault, (2007)	On The Assessment Of The Strategic Value Of Information Technologies: Conceptual and Analytical Approach	- Business Strategy - IS Strategy - Organization Performance	This study used strategic IT alignment by compared two conceptual (RBV and contingency-base) to measure the organization performance. They surveyed by collecting from CEO and CIO of 110 firms , the result revealed that RBV and contingency-based approaches the resource-centered and contingency based approaches could explained the impact of IT applications on firm performance. Alignment between business strategy and information systems strategy could reduced cost. Moreover, the firm that were high-end strategic alignment could leaded to superior performance more than other firm that were low strategic alignment.
Xiaoying et al. (2008)	Business Performance, Business Strategy, and Information System Strategic Alignment : An Empirical Study on Chinese Firms	- Strategic Alignment - Business Strategy - Information System Strategy - Business Performance	The study aimed to measured business performance from Henderson and Venkatraman' s theory by aligning business strategy and information system strategy and integrated with information system performance. The results revealed that business strategy had no direct affect on business performance, while IS strategy had direct affect on business performance, and strategic alignment influenced business performance. They summarized that strategic alignment was a better predictor of business performance than business strategy or IS strategy alone.

54

Table 2.1 Review Literature of Strategic-IT Alignment (Cont.)

Authors	Title	Constructs	Finding
Chen et al. (2010)	Information Systems Strategy: Reconceptualization, Measurement, and Implications	- IS strategy - Business Strategy - IS strategic alignment - Competitive advantage	This study reviewed and proposed the model for created competitive advantage by aligning IS strategy and business strategy for strategic management both IS function plan and used of IS to support business plan as an organizational perspective on the firm's investment. They proposed three conceptions of IS strategy including (1) IS strategy as the use of IS to supported business strategy; (2) IS strategy as the master plan of IS function; and (3) IS strategy as the shared view of the IS role with in the organization. Moreover, they confirmed their study that both chief information officers and senior business executives of organizations which used IS strategy as a diagnostic tools by usage IT supported the organization's functionality, they had potential and could created competitive advantage for their organization.

55

Table 2.1 Review Literature of Strategic-IT Alignment

Authors	Title	Constructs	Finding
Jassapalo (2010)	Information Technology Strategy and Business Strategy Alignment and Its Effects on Information Technology Effectiveness of Thai Business Organizations	- Strategic IT alignment - Information Technology Effectiveness	The purpose were to study the alignment of information technology strategy and business strategy of business organizations with different business types and organization structure by types and effected on information technology effectiveness also studied about alignment. His finding revealed that the score level of information technology and business strategies alignment were 10.72 out of 20 which were accounted for 53.60%. The relationship between information strategy and business strategies alignment depended on three factors; 1) the chief information and chief executive officers' participation in the planning of both information technology strategies and business strategies 2) the chief executive officers' awareness of the significance nd supported of IT and 3) knowledge management and communication between the chief information and chief executive officers. There was positive relationship between the alignment and information technology effectiveness.

56

Table 2.1 Review Literature of Strategic-IT Alignment

Authors	Title	Constructs	Finding
Tallon and Pinsonneault (2011)	Computing Perspective on the Link Between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model	- Strategic IT Alignment - Firm Agility - Firm Performance - IT Flexibility	The purpose of this study wanted to test the Strategic IT Alignment influence the firm performance by using the agility as the mediator variable to linked between the Strategic IT Alignment and firm performance. They used IT Flexibility and Environmental Volatility as the mediating effect of the model. They used data from matched survey of IT and business exclusives from 241 firms by using questionnaires. The results showed that Strategic IT Alignment had no direct effect to firm performance but it indirect on firm performance through agility as mediator that environmental volatility positively moderated the link between agility and firm performance.
Rashidirad et al. (2012)	The Strategic Alignment between Competitive Strategy and Dynamic Capability and its Impact on E-business Value	- Strategic alignment - Competitive Strategy - Dynamic Capability - Value Creation	The purpose of this study were examined the existence and value impact of competitive strategy, and dynamic capability alignment by reviewed literature for two constructs and its impact e-business value creation in a holistic perspective. They proposed a conceptual framework for creating e-business value from the strategic alignment which consisted four constructs competitive strategy, dynamic capability, strategic alignment , and E-business value, they planed to collecting data with online survey from 350 telecommunication firms in United Kingdom .

57

Table 2.1 Review Literature of Strategic-IT Alignment

Authors	Title	Constructs	Finding
Subriadi et al. (2013)	Information technology productivity paradox: a resource-based view and information technology strategic alignment perspective for measuring information technology contribution on performance	- IT Strategic alignment - IT Resources - Firm Performance	The study aimed to measured firm performance by linking RBV theory, IT Strategic Alignment rules were adopted in effort to align IT goals with business goals through IT-based Capability and IT Support for Core Competence. The results revealed that IT resources had significant effect on IT capability, and performance. IT capability had significant affect on IT Support for Core Competence, and IT Support for Core Competence had affect on performance. Moreover, they asserted that IT resources were materials to developed firm ability by creating IT-Base capability from adopt IT strategic alignment by aligning IT goals with business goals. Furthermore, IT resources had direct affected on performance higher than indirect effect through mediator.
Gerow et al. (2014)	Looking Toward the Future of IT-Business Strategic Alignment through the Past:A META-Analysis	- IT-Business alignment - Firm Performance	The purpose of study was examined the relationship between IT-business strategic alignment by analyzed 30 years of alignment researches. The results found that the alignment dimension (intellectual, operational, and cross domain) had relationship with the different performance types. This study contributed the literature by explaining the relationships between alignment and performance outcomes and presenting insight the sources of both consistency and inconsistency research, and guideline in the future.

58

Regarding the above concepts, theories, and researches, this study defines strategic IT alignment which was proposed by Kearns and Lederer (2003) in four terms including business plan (BP) and information technology plan (ITP) alignment, IT plan and business plan alignment, CEO participation, and CIO participation. This subject is in accordance with Cumps et al. (2006), Oh and Pinsonneault (2007), Xiaoying et al. (2008), Chen et al. (2010), Tallon and Pinsonneault (2011), Subriadi et al. (2013), and Gerow et al. (2014). Similarly, Teo and Ang (1999) followed the basic theory which was asserted by Henderson and Venkatraman (1989, 1999) and it was confirmed again by Insights (2009).

2.2 Resource-Based View

Resource-Based View (RBV) is a classic theory which can be applied to use and link in many disciplines, such as management, marketing, industry and information system. Especially, the information system (IS) applies RBV to analyze the impact of information technology (IT) on the organization performance (Santhanam & Hartono, 2003; Liang & You, 2009; Acosta et al., 2011). The root RBV theory was proposed by Chamberlin (1933) and Penrose's (1959). It was developed and contributed to the modern RBV in strategic management field that can created competitive advantages for firms (Penrose, 1959; Rugman & Verbeke, 2002; Kor & Mahoney, 2004). Later, Porter (1980) proposed new theory about competitive in the industry by linking with RBV namely "Five Force Model". Many academicians and researchers studied and proposed concepts and theories which relate to the RBV, for example RBV in concept of strategy, in terms of the resource position of the firm which economic tools operate on the product-market side (Andrew, 1971; Wernerfelt, 1984).

A firm's resource was anything or all assets which could be tangible, intangible, human and nonhuman. Such assets are possessed, controlled or tied semi permanently by the firm. It was permitted to invent and applies value enhance strategies for instance, brand names, in-house knowledge of technology, technology skills, skilled personnel of employee, trade contacts, capital, efficient procedure (Caves, 1980; Wernerfelt, 1984; Barney, 1991; Halawi et al., 2005; Chang et al., 2006). The firm's internal resources are basic predictors of superior financial performance of firm.

Each firm is able to possess heterogeneous resources that are difficult to duplicate and are not inconstant. These resources provide a marketplace advantage superior competitors and create the potential for sustainable competitive advantage (Wernerfelt, 1984; Barney,1991; Kearns & Lederer, 2003). Grant (1991) noted that the contribution of the RBV is the distinguished concept of firm with focuses on developing the internal resources and processes. There are varieties of resources and capabilities namely, distinctive competences, core competences, invisible assets, core capabilities, inter capabilities, embedded knowledge, corporate culture, unique combination of business process, experience and business process (Von Krogh & Roos, 1995; Halawi et al., 2005).

Barney (1991) asserted that resources and capabilities are valuable, uncommon, poorly imitable and non substitutable. They comprise the firm's core competences, and achieve competitive advantage especially (Prahalad & Hamel, 1990). It is remarked that intangible resources, such as knowledge, are able to add up value incoming factors of production which more likely than tangible resources (Hitt et al.,2001; Halawi et al., 2005). The intangible resources represent competitive advantage for a firm (Prahalad & Hamel, 1990; Collis & Montgomery, 1995; Markides, 1997). The advantage is developed over time and cannot easily be imitated (Halawi et al., 2005). Also Barney (1991) proposed that the resources can be controlled by a firm. That is the firm can define and implement strategies for expanding its efficiency and effectiveness. Later Barney developed the VRIO (Value, Rareness, Imitability, and Organization) framework (figure 2.8) for accessing and classified what kinds of resources would be sustainable competitive advantage.

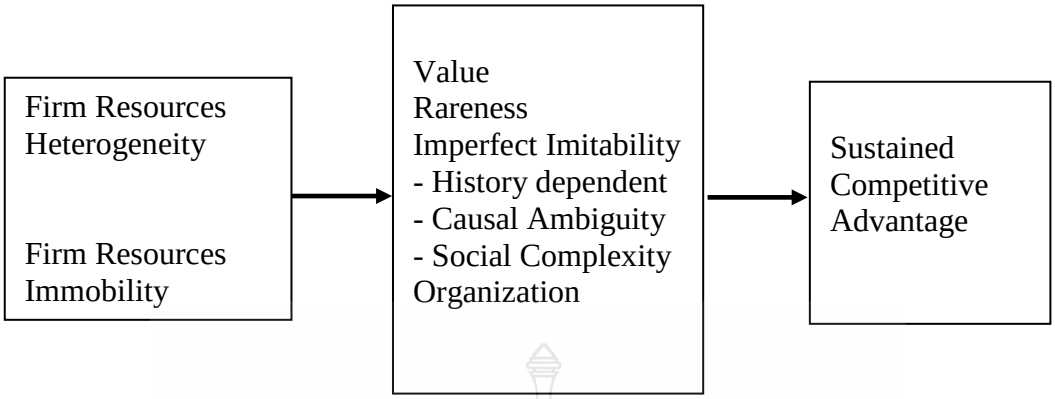


Figure 2.8 The VRIO Framework Shows the Relationship Between Resources Heterogeneity and Immobility to Get Sustained Competitive Advantage (Barney, 1991: 112)

The VRIO framework that proposed by Barney (1991) was a structured approach. It is based for analyzing the firm's resources to get competitive advantage in business vision. The definition of each component is as below.

1. Value.

Barney (1991) gave the definition that value is a resource which has special features or multiple attributes that are possessed by firm. It can create a chance of premium price, new market or increase market share, and achieve cost advantage over its competitors. Similarly, Wade and Hulland (2004) said that all of the IS resources has at least moderate value to the firms that possess them. For example, to support this definition, Mata et al.(1995), Ross et al.(1996), Feeny and Willcocks (1998) and Bharadwaj (2000) studied and asserted that IS resources has value to their firms. So a resource is valuable if it can be used to increase market share, achieve a cost advantage or charge a premium price. Barney (1991) suggested that a resource that is not valuable or is irrelevant cannot be a source of competitive advantage and Chapman (2011) agreed with him.

2. Rareness

Rarity is important because if competitors possess the same resources, there will be no inherent advantage in those resources (Barney, 1991). In general, the key IS resources are all likely to be relatively rare (Wade & Hulland, 2004). If a valuable resource is not available to all competitors, it means "rare" and therefore there is a

potential source of competitive advantage. However, for the case of the value attribute, outside-in and spanning resources are likely to be associated with a higher degree of rarity than inside-out resource. The basal reason is that an available labor market allows firms lack key of IS technology, operational efficiency skills, and IS development personnel resources. They are acquired by offering superior wage. All of these are important IS resources for firm (Wade & Hulland, 2004). If different businesses can figure the same IS resources differently to achieve competitive advantage, this IS resources will be rare. (Barney, 1991; Chapman, 2011). Similarly, spanning and outside-in resources tend to be socially complex and cannot be easily acquired in factor markets. This situation is rare resources (Wade & Hulland, 2004).

3. Imitability

Barney (1991) gave the definition of Imitability that means a resource is difficult to be copied or it is too expensive for competitors to imitate or acquire, such as brand recognition/perception. These resources are potential for competitive advantage and Chapman (2011) agreed with him. The outside-in and spanning resources are likely to be imitate because both of them will be developed and evolved uniquely to be appropriate for each firm (Barney,1991; Wade & Hulland, 2004). Furthermore, these resources are likely to be socially complex, and firms are likely to develop technology skills and IS capabilities of human resources which are different from other firms. So these resources will become imitability (Wade & Hulland,2004).

4. Organization

The root of organization is substitutability the last requirement firm's resource. It is considered in two forms, the first is management or developing firm's resources from implementation of unique top management's strategy with highly quality top management team. The second is very different firm's resources which can be strategic substitutes. The managers in the firm may have very clear vision of the future of their firm in strategic planning process equivalent firm's resources for the leaders and substitutes from another firms (Barney, 1991). Later Barney (2001) defined substitutability as an organization. That means a capability of business in taking advantage of the resources at its disposal. If a resource is available, rare and difficult to

imitate, a business must be able to exploit it. Otherwise it will of little use. This may require reorganizing the business (Chapman, 2011).

2.3 IS Capabilities

Regarding the above concepts, theories, and details of RBV, since this study deals with information system disciplines, we will define RBV in IS field namely IS resources.

This study, we define resources as assets and capabilities that are the set of useful and available resources to contribute direct effect on sustainable competitive advantage which lead to performance (Wade & Hulland, 2004). The RBV started to study in IS research in the mid-1990s (Wade & Hulland, 2004). Many academicians and researchers identified IS resources for instance; Ross et al. (1996) defined IS resources into three IT assets which together with IT process that contribute the business value. These three types were human assets (e.g., business understanding, personnel technical skills), technology assets (e.g., Physical IT tools, Database, technical platforms), and relationship assets (e.g., top management sponsorship, partnership, shared risk and responsibility). IT process is defined as planning ability, cost effective operations, and support and fast delivery, and it was later modified by Bharadwaj (2000) who also included IT infrastructure, human IT resources, and IT-enabled intangibles. In other view, Feeny and Willcocks (1998) defined nine core IS capabilities which their organizations divided into four overlapping areas including business and IT vision (integration between IT and other divisions of the firm), design of IT architectures (IT development skills), delivery of IS services (implementation, dealing with vendors and customers) and a core set of capabilities which included IS leadership and informed buying. Similary, Bharadwaj et al. (1998) measured IT capabilities with six dimensions including IT/business, partnership, business IT strategic thinking, IT business process integration, IT management, IT infrastructure, and external IT linkage.

For application, there are many studies about the link between IS resources and firm performance with together. For example, Mata et al. (1995) used RBV to define in five key IS drivers; customer switching cost, access to capital, proprietary

technology, technical IT skills, and managerial IT skills. This view leads to sustain competitive advantage. Powell and Dent-Micallef (1997) also defined IS resources into three parts; human resources, business resources, and technology resources. They studied the U.S. retail industry and found that only human resources with IT contribution can improve firm performance. Amongst the business resources, only training positively affects on performance, while there are not technology resources linked positively to firm performance.

Some studies divided IS resources into two classes; IS assets (technology-based) and IS capabilities (system-based). They recommended that IS assets (e.g., IS infrastructure) are the easiest resources that an competitor can duplicated. It illustrates the most brittle sources of sustainable competitive advantage for firms (Leonard-Barton, 1992; Teece et al., 1997; Wade & Hulland, 2004).

The IS resources in this study are organized by using a typology proposed by Day (1994). He defined the resources into three types of processes or their capabilities including inside-out capabilities, outside-in capabilities, and spanning capabilities. So, we can call IS resources as IS capabilities.

Inside-Out Capabilities

Inside-out capabilities are deployed from inside the firm in response to the market requirements and opportunities. They focused internally activities that the firm can control them, this category is divided into four parts as follows;

1. IS Infrastructure

IS Infrastructure is defined as basic physical items of the information technology (IT) components including: computer hardware and software, network resources, and services for operations, management of an enterprise IT environment to deliver IT solutions and efficiency services to its staffs, customers, and partners (Jarvenpaa & Liedner, 1998; Grant et al., 2010). IS resources include proprietary or complex and it is hard to imitate. If an organization has IS Infrastructure which is complex rarity and hard to imitate, these resources can be source of sustained competitive advantage for firm (Mata et al. 1995; Powell & Dent-Micallef , 1997; Ray et al., 2001). IS Infrastructure measures from the level of IT solutions and service capabilities and benefit for its stakeholders (Wade & Hulland, 2004).

2. IS technical skills

IS technical skills are the result of suitable and updated technology skills which relate to computer system, hardware and software that are handled by the IT/IS employees of a firm. This resource focuses on technical skills that are potential to deploy and manage the knowledge complex. It is difficult to imitate and get advanced. This IS skills are related with mobility of IS/IT personnel skills that are potential to deploy and manage from the knowledge. So it cannot be easily transferred. For example, the skills compose of corporate, level knowledge asset and technology integration skills (Bharadwaj, 2000; Feeny & Willcocks, 1998). In addition, IS technical skills are measured from the IS/IT personal potential skills. Such skills include learning the knowledge and applying their knowledge, integrated with high technology. Then they can transfer these to deploy and manage for firm (Bharadwaj. 2000). Thus, these resources can become a source of sustained competitive advantage (Wade & Hulland, 2004).

3. IS development

IS development is regarded as the capability to develop or experiment to change with new technology, alertness to emerging technology and to allow firm to quickly take advantage of new advance (Zaheer & Zaheer, 1997; Jarvenpaa & Liedner, 1998; Bharadwaj, 2000; Wade & Hulland, 2004). IS development can be measured from the capabilities to develop or experiment to changes or alertness which will emerge new advanced technology (Bharadwaj, 2000; Wade & Hulland, 2004).

4. Cost effective IS operation

This resource is the capability to develop and manage IT system of appropriate quality operation and function effectively (Feeny & Willcocks, 1998; Bharadwaj, 2000). The Cost effective IS operation can be measured from using this capability to reduce costs and develop a cost leadership position in firm (Porter, 1985; Barney, 1991). People use it for long term competitive advantage. The IS operations and ability avoid large persistent cost overrun unnecessary downtime and system failure which is likely to be an important leader to superior performance (Ross et al.,1996). It is expected to have positive effect on firm performance (Feeny & Willcocks, 1998; Bharadwaj, 2000; Wade & Hulland, 2004).

Outside – In Capabilities

Outside - In capability focuses on external activities. It emphasizes on anticipating the marketing requirement to create durable customers, relationship and to understand competitor. This capability can be classified into two parts as follows;

1. External Relationship Management

External Relationship Management is the firm's ability to manage the linkage between Is function and stakeholders outside the firm. It illustrates an ability to operate with suppliers for developing appropriate firm's system and infrastructure requirements by itself (Feeny & Willcocks, 1998; Wade & Hulland, 2004). This ability focuses on management relationship with outsourcing partners and providing solutions and management system to support customer services (Bharadwaj et al.,1998; Bharadwaj, 2000). This ability is an important firm's resource because it manages the relationship with external stakeholders which can lead to competitive advantage and superior firm performance (Wade & Hulland, 2004).

2. Market Responsiveness

Market responsiveness is the firm's ability that relates to the collection of information from external sources and dissemination of firm's market intelligence across departments and the firm's response to learning (Day,1994; Kohli & Bernard, 1990). This resource includes the abilities to develop and manage project swiftly (Ross et al., 1996) and response to rapid changes in market conditions (Feeny & Ives, 1990; Bharadwaj, 2000). A Key feature of market responsiveness is strategic flexibility that allows the organization to undertake strategic change when it's necessary (Powell & Dent-Micallef , 1997; Jarvenpaa & Leidner, 1998; Bharadwaj, 2000; Wade & Hulland, 2004).

Spanning Capabilities

The spanning resources capabilities include both internal and external analysis for integrating the firm's inside – out and outside – in capabilities to develop multi dimensional measures of IT Capabilities (Santhanam & Hartono, 2003; Wade & Hulland, 2004). This resource can be divided into two types as follows;

1. IS Business Partnership.

IS Business Partnership is the capability which processes integration and alignment between the IS function and other functional departments of the firm (Wade & Hulland, 2004). The importance of IS alignment, especially business strategy, has been worked together and well documented (Reich & Benbasat,1996; Bharadwaj, 2000) assimilation (Armstrong & Sambarmurthy, 1999) and partnership (Ross et al, 1996; Bharadwaj, et al., 1998; Bharadwaj, 2000).

This type of resource can be measured from building relationships of internal resources in a firm, between IS functions and other departments. The relationships can help to span the traditional gaps between functions and department that support for collaboration which the result effects to superior competitive position and achieve firm performance (Wade & Hulland, 2004).

2. IS Planning and Change Management

This resource is the capability to plan, manage, and use appropriate technology architecture and standard function to span the gaps (Wade & Hulland, 2004). The key aspects of this resource include the capabilities to anticipate future changes and choose the best platforms that facilitate this change (Mata et al., 1995; Ross et al, 1996; Bharadwaj et al, 1998; Feeny & Willcocks, 1998). IS Planning and Change Management are measured from the capability of IS manager to understand how technologies can and should be used, how to motivate and manage IS personnel through changes the process (Bharadwaj et al., 1998; Wade & Hulland, 2004).

Begin with Kearn and Lederer (2003) examined the influence of information intensity on the knowledge sharing process of strategic IT alignment, using in the RBV perspective. Postal questionnaires were used as instruments to survey data. The random sampling of 1,200 companies were the population for this survey. This includes all industries except government and nonprofit organizations. The authors sent questionnaires directly to CIO and CEO of companies. Only 161 questionnaires were sent back. The result revealed that information intensity is an important predecessor that positively affects strategic IT alignment. The strategic IT alignment is the best factor which is explained by multiple constructs with operationalized between process and

content measures. The alignment between IT plan and business plan was related to the use of IT for competitive advantage.

At the same time, Santhanam and Hartono (2003) investigate the IT Capability can create firm performance. They use resource-based view (RBV) framework by replicating and extending Bharadwaj 's (2000) framework. They use source data from Compustat database during period 1991 through 1994 and multidimensional measure performance from financial performance which are profit ratio and cost ratio. The method is selecting leaders of industry firms by asking them to identify and rank the firm that they perceive to have firm superior IT Capability. The results assert that the financial performance of firms that have superior IT Capability are higher than all other industry firms. Moreover, they insist that there is relationship between past and current financial performance.

This study applies the IS Capability from Wade and Hulland (2004) which their finding confirm that IS Capability can create competitive advantage. They propose the topology of IS resources in three dimensions which corresponding Day (1994). The three dimensions of IS resources are inside-out capabilities, outside-in capabilities, and spanning capabilities.

Additionally, Ravichandran and Lertwongsatien (2005) studied about IS resources and capabilities on RBV theory that affects on firm performance. The methodology of this research was done by mailing questionnaires to survey from 1,000 Fortune firms. The names of the firms were obtained from Directory of Top Computer Executive in the United States. The population were senior IS executives. Only 129 questionnaires from the total number of 710 were sent back, resulting in a response rate of 18.2 percent. The result revealed that a firm's performance was explained by extent for using IT to support and enhance the firm's core competencies. It's capabilities were the channel to develop distinctive firm competencies. Moreover, the organization's abilities to use IT to support it's core competencies depend on IS functional capabilities, which in turn depend on the nature of human resource, technology, and relationship resources of the IS department in terms of the resources-based view.

Later, Chang et al. (2006) studied about RBV of IS capability in Taiwan PC Industry. They aimed to develop a framework for measuring the IOS (Inter

organizational Information System) capability by using the resource-based theory. They proposed four IOS resources; namely physical IT assets, path dependency, relational intangibles, and market power. They coordinated with six Taiwan PC firms by using questionnaires. For each firm, they asked a purchasing and/or engineering senior manager to select the suppliers under their responsibility. The respondents were senior managers. Questionnaires were used as instruments to collect data. The researchers distributed questionnaires to 557 firms, but they got them back from only 87 firms to analyze. The result indicated that physical IT assets and relational-specific intangible are positively related with IOS usage. The final result indicated that the firms with more IOS usage are more likely to achieve better than firm performance.

In the same time, Rivard et al. (2006) made a survey on the contribution of information technology to firm performance which depends on RBV and competitive strategy by mailing questionnaires to 700 CEOs in small and medium sized enterprises (SMEs) in Canada. Total number of 96 questionnaires came back. The finding revealed that IT had support for strategy directly affected industry force and performance. However, there were no indirect strategy effected between IT support for strategy and performance. IT support for firm assets strongly effected on IT support for strategy and it directly affected profitability. The performance directly influenced on profitability. In conclusion, this study indicated that an integrated RBV and competitive strategy was the model for contribution of IT to the firm performance.

Later, Yin and Yang (2011) examined IT capability in three perspectives: IT infrastructure, Managerial IT skills, and partnership between IT and business could created competitive advantage in context of IT assimilation namely business value of IT in China. They used questionnaire to collected data from part time MBA in Renmin University of China who were CIO or IS manager. The data analysis and test model used 70 returned questionnaires with PLS. The results revealed that IT infrastructure capability, and Managerial IT skills capability both direct effected and indirect effected on partnership through IT business on IT assimilation. They asserted that IT capability in three perspectives influenced IT assimilation in competitive advantage perspective.

The recent Bi et al. (2013) explored the relationship between IT complementary resources and fast growth SME performance. They surveyed with

online questionnaire with CEO of all 1,335 fast growth SMEs in Australia. The total of 310 responses were analyzed. The results showed that IT complementary resources leaded to firm growth through enhancing activity integration and information sharing process in along the value chain in information sharing perspective. They asserted that IT complementary resources in RBV effected on business process performance in term activity integration and information sharing process and leaded to achieve the organization performance. The summary of review literature of IS Capabilities or IS Resources is shown in Table 2.2.

Table 2.2 Review Literature of IS Capabilities or IS Resources in term of Resource-Based View

Authors	Title	Constructs	Finding
Santhanam and Hartono (2003)	Issue in Linking Information Technology Capability to Firm Performance	IT Capability Firm Performance	The purpose of this study wanted to investigate the IT Capability can create firm performance. They used resource-based view (RBV) framework by replicating and extending Bharadwaj's (2000) framework . They used source data from Compustat database during period 1991 through 1994 and multidimensional measure performance from financial performance which were profit ratio and cost ratio. The method was selecting leaders of industry firms by asking them to identify and rank the firm that they perceived to have firm superior IT Capability. The results asserted that the financial performance of firms that have superior IT Capability were higher than all other industry firms. Moreover, they insisted that there was relationship between past and current financial performance.

71

Table 2.2 Review Literature of IS Capabilities or IS Resources in term of Resource-Based View (Cont.)

Authors	Title	Constructs	Finding
Wade and Hulland (2004)	Review : The Resource-Based View and Information System Research : Review, Extension, and Suggestion for Future Research	- Resource-Based View - IS Resources - Competitive Advantage	The purpose of this study was to investigate and evaluated use of resource-based view (RBV) in IS/IT research. They reviewed of resource-based theory and suggested broadening to apply RBV more useful in IS/IT research. They offered to apply RBV for IS/IT research in term of IS resource capability which influence the organization performance. They defined IS resources as assets and capabilities that were available and useful for creating competitive advantage and achieved the organization goal, and leaded to organization performance. They proposed the topology of IS resources in three dimensions which corresponding Day (1994). The three dimensions of IS resources were inside-out capabilities, outside-in capabilities, and spanning capabilities.

72

Table 2.2 Review Literature of IS Capabilities or IS Resources in term of Resource-Based View (Cont.)

Authors	Title	Constructs	Finding
Ravichandran and Lertwongsatien (2005).	Effect of Information Systems Resources and Capabilities on Firm Performance : A Resource-Based Perspective.	- IS Human Capital - IT Infrastructure Flexibility - IS Partnership Quality - IS Capabilities - IT Support for Core Competencies - Firm Performance	They studied about IS resources and capabilities on RBV theory that affects on firm performance. The methodology of this research was done by mailing questionnaires to survey from 1,000 Fortune firms. The names of the firms were obtained from Directory of Top Computer Executive in the United States. The population were senior IS executives. Only 129 questionnaires from the total number of 710 were sent back, resulting in a response rate of 18.2 percent. The results revealed that a firm's performance was explained by extent for using IT to support and enhance the firm's core competencies. It's capabilities were the channel to develop distinctive firm competencies. Moreover, the organization's abilities to use IT to support it's core competencies depend on IS functional capabilities, which in turn depend on the nature of human resource, technology, and relationship resources of the IS department in terms of the resources-based view. They asserted that IS Capabilities had positive effect on IT support for core competencies, and the IT support for core competencies influenced firm performance.

73

Table 2.2 Review Literature of IS Capabilities or IS Resources in term of Resource-Based View (Cont.)

Authors	Title	Constructs	Finding
Chang et al. (2006).	Resource-Based View of The Inter-Organizational Information System Capability: A Field Study in Taiwan PC Industry.	- Physical IT assets - Path Dependency - Relational Intangibles - Market Power.	They studied about RBV of IS capability in Taiwan PC Industry. They aimed to develop a framework for measuring the IOS (Inter organizational Information System) capability by using the resource-based theory. They proposed four IOS resources; namely physical IT assets, path dependency, relational intangibles, and market power. They coordinated with six Taiwan PC firms by using questionnaires. For each firm, they asked a purchasing and/or engineering senior manager to select the suppliers under their responsibility. The respondents were senior managers. The result indicated that physical IT assets and relational-specific intangible are positively related with IOS usage. The final results indicated that the firms with more IOS usage were more likely to achieved better than firm performance.
Rivard et al. (2006)	Resource-based view and competitive strategy: An integrated model of the contribution of information technology to firm performance.	- IT support for firm Assets - IT support for firm Strategy - Industry Force - Performance	The purpose of this study was to examined an integrated model between Barney's theory resource-based view and Porter's competitive strategy framework for contribute the firm performance. They surveyed of 96 small- and medium-sized enterprises (SME). The results showed that the IT support for competencies in term of firm assets strongly affected on IT support for strategy and it directs effected on profitability. The IT support for competencies indirect effected performance via IT support for strategy.

74

Table 2.2 Review Literature of IS Capabilities or IS Resources in term of Resource-Based View (cont.)

Authors	Title	Constructs	Finding
Yin and Yang (2011)	The Construction Of Firm's IT Capability And Its Impact On IT Assimilation : An Empirical Investigation In China	- IT Capability - Business value of IT - Resource-Based View - IT Assimilation in term Competitive Advantage	The purpose of this study was to examine IT capability in three perspectives: IT infrastructure, Managerial IT skills, and partnership between IT and business could created competitive advantage in context of IT assimilation namely business value of IT in China. The results revealed that IT infrastructure capability, and Managerial IT skills capability both direct effected and indirect effected partnership through IT business on IT assimilation. They asserted that IT capability in three perspectives influence IT assimilation in competitive advantage perspective.
Bi et al.,(2013)	The Effect Of IT Complementary Resources On Fast Growth Small-to-Medium Enterprise Performance : A Resource-Base View.	- Resource-Based View - Strategic IT alignment - IT Complementary Resources - Enterprise Performance	This study wanted to explore the relationship between IT complementary resources and fast growth SME performance. The results showed that IT complementary resources leaded to firm growth through enhancing activity integration and information sharing process in along the value chain in information sharing perspective. They asserted that IT complementary resources in RBV effected on business process performance in term activity integration and information sharing process and leaded to achieve the organization performance.

75

2.4 IT Support for Core Competencies

In the present time, there is highly competition both local and global business for scrambling or occupying the market share and customers, customer's changing needs. The changing of environment and product market position lead to the requirement of more efficient supply chain management (Wernerfelt, 1984; Fahy & Smithee, 1999; Chang et al., 2006). So, the organizations must consider and link their internal activities. for example, production, inventory management, sales and purchasing material together with all outside business partners must be operated to facilitate their activities. They should collaborate with each other to reduce costs (Chang et al., 2006). As mentioned above, to effectively integrate with partners is rather a difficult task. Therefore, the organizations should develop the wide range of IT capabilities, such as speed, accessibility, and communication, to obtain the best information among various organizations.

Foss (1997) designated the definition of RBV as non-homogeneous use of terms such as, assets, resources, capabilities and competences. He argued that these RBV can lead to sustain competition. The RBV has developed as a repository of theories with the associate literature base (Rumelt, 1994; Wernerfelt, 1984), dynamic capabilities (Teece et al.,1994), competence-base theory (Prahalad and Hamel, 1994) and knowledge-base theory (Grant, 1991). The attributes of RBV (valuable, rare, imitable, and organization (non-substitution) resources) cause a sustained competitive advantage (Foss & Knudsen, 2000; Truijens, 2003). So, when an organization use IS and IT capabilities together, they are able to support and enhance core competencies.

The term competency was originally used in education field to describe the behavior of a teacher trainee (Hoffmann, 1999). It became well known and widely develop in management field (Boyatzis, 1982; Hoffmann, 1999). In general, a variety of stakeholders was involved in using each competency of their firms (Burgoyne, 1993). Hence, the competency has been defined in different points of view. Burgoyne (1993) and Hoffmann (1999) defined the competency in five views;

1. Psychologists were implicated the competency concept as a measure of ability by observable performance of a person who represented their underlying traits or capability (Sternberg & Kolligian,1990; Burgoyne, 1993; Hoffmann, 1999).

2. Management theorists defined the competency as an applied functional analysis. That is how organization's goals were to be the best achieved by measure from improved employees' individual performance (Burgoyne, 1993; Hoffmann, 1999).

3. Human resource managers defined the competency as their technical tool to implement strategic direction pass through the tactics of recruitment, placement, training, assessment, promotion, reward systems and personnel planning framework (Burgoyne, 1993; Hoffmann, 1999).

4. Educationists clarified the competency as personnel's abilities and skills in work preparation and professional. This concept was a recognition of a broad education (Burgoyne, 1993; Hoffmann, 1999).

5. Politicians, including those involved in the political process such as Trade Unions, Employer groups and political parties, particularly have used the competency to improve the efficiency and skills of the labor market (Hoffmann, 1999). For example, in the United Kingdom and Australia people have used this concept for improving the efficiency of the broad labor market (Burgoyne, 1993).

For clarifying competency presently, the academicians tried to develop their competency which is based on standards. They use this approach for their workplaces to achieve the improvement of their firm performance (Hoffmann, 1999).

The concept of core competencies developed from firm's resource-based view. It emphasized that competitive advantage rests on the firm's possession of unique. It is difficult to imitate skills, knowledge, resources and competencies (Wernerfelt, 1984; Rumelt, 1994; Srivastava, 2005).

The competency has a variety of definition (Strebler et al., 1997; Jubb & Rowbotham, 1997). Practitioners tried to evolve several meanings that focus for their attention to implement the competencies to their work field (Hoffmann, 1999). Srivastava (2005) focused core competencies as a dynamic learning resource which was subject to continuous metamorphosis with changes of the internal and external environment. He also defined that core competencies are the ability of a firm to successfully identify, nurture, develop, upgrade, and deploy its hierarchy of competencies to attain sustainable competitive advantage.

The core competencies have been defined as “An organization’s major value-creating skills, capabilities, and resources that determine its competitive weapons.” (Prahalad & Hamel, 1990). The core competencies are part of the result of organizational analysis, which internal analysis provides the organization’s specific assets, skills, and work activities, among which the core competencies are exceptional or unique (Srivastava, 2005). Prahalad and Hamel (1990) wrote an article about core competencies namely “The Core Competence of the Corporation”. They built the competencies model for the future (Figure 2.9).

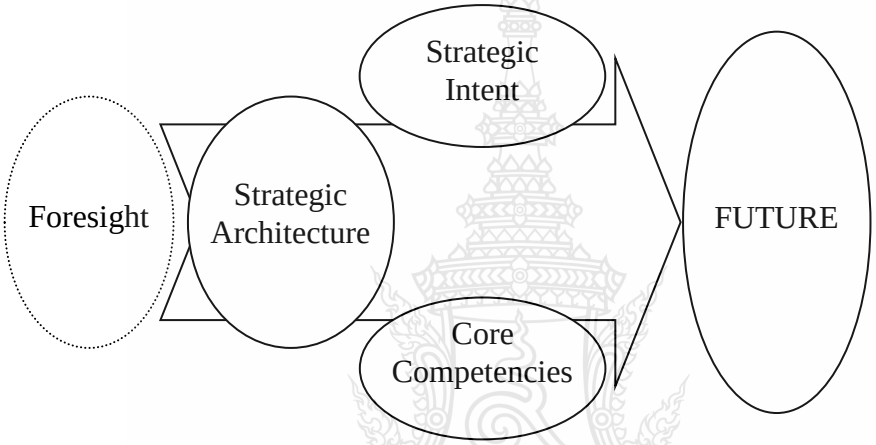


Figure 2.9 Core Competencies Model (Prahalad and Hamel, 1990)

Prahalad and Hamel (1990) described that the first thing should be done is to develop foresight which is prescience about the size and shape or position of tomorrow's opportunities, such as, new types of customer benefits or new ways of delivering the benefits. They suggest that we forget the present market, the present product, or the present business units, or the organization. The second step is to design the “strategic architecture” instead of the strategic planning which describes new benefits and functionalities for the future. They suggested to designed new competencies which will need to create products and satisfy customers.

Core competencies are the combination of pooled knowledge and technical capabilities that allow a firm to be competitive in marketplace. It should allow a firm to expand into new end markets as well as to provide a significant benefit to customers. Also it is hard to be duplicated by competitors (Barney, 1991; Prahalad & Hamel,

1990). Similary, King et al.(2001) and Majeed (2011) defined that competencies combine knowledge and skills for developing and improving the personnel's behavior and technical skills of employees or staffs in organization more enhancement.

Strebler et al. (1997) defined two different meanings of the development of the term competency. That is competencies may be "expressed as personnel's behavior that an individual needs to demonstrate" or "expressed as minimum standards of performance when referring to term work". In additional, Hoffmann (1999) suggested to categorize the competency into three main position as either:

The first definition was observable performance or the outputs of learning processes (Boam & Sparrow, 1992; Burgoyne, 1993). This definition focused on a person's performance comparing with a person's competent which was described in the written standards (Strebler et al., 1997). This approach provided a personnel's behavior framework for a learning program which emphasized on the organizational output, outcome or tasks. The purpose was to train and accredit staff in relevant elements of their jobs, or for apprentices and for new starters to learn a job. It also included clear establishment and it can measure performances for assessment (Strebler et al., 1997). The personnel individuals' performances were described as competencies in order to be performed, observed, and assessed to obtain accreditation as competent (Hoffmann, 1999) .

The second definition of competency was a standard, or quality of outcome of the person's performance (Rutherford, 1995; Hager et al., 1994). This definition may be used for several applications of standards or quality of performance to pursue gains in productivity or efficiency in the workplaces;

- A standard could refer to a minimum acceptable level of that performance that provide a measure of flexibility among the staff and ensure that all staffs must demonstrate competent behavior (Hoffmann, 1999).

- A standard could refer to the higher acceptable levels of performance that can raise output, set new requirements for productivity, require some different work practices and ensure that workers could do more than previously done in their jobs.

This competency standards may be written governing for both the multiple tasks of the individuals and the means for the operation of teams. Competency

standards could be written governing for both the multiple tasks of the individuals and the operation of teams. It is used to provide feedback on the progress of individuals and teams through the assessment process.

The third definition of competency focuses on underlying attributes of individual person such as knowledge, skills, abilities, or attitudes of competent performers (Boyatzis, 1982; Sternberg & Kolligian, 1990; Hoffmann, 1999). This definition emphases the input of underlying attributes of individual which the inputs need for the development of learning, knowledge, skills by comparing with the quality of standard performance indicators. The organization may clarify and design standards requirement for assessment for both learner and assessor who have unambiguous descriptions of working. In addition, we must define the syllabus or content of learning, knowledge, skills, and range of abilities for them to produce competent performances (Hoffmann, 1999).

Raduan et al.(2009) drew the relationship between competitive advantage and performance model as showed in Figure 2.10.

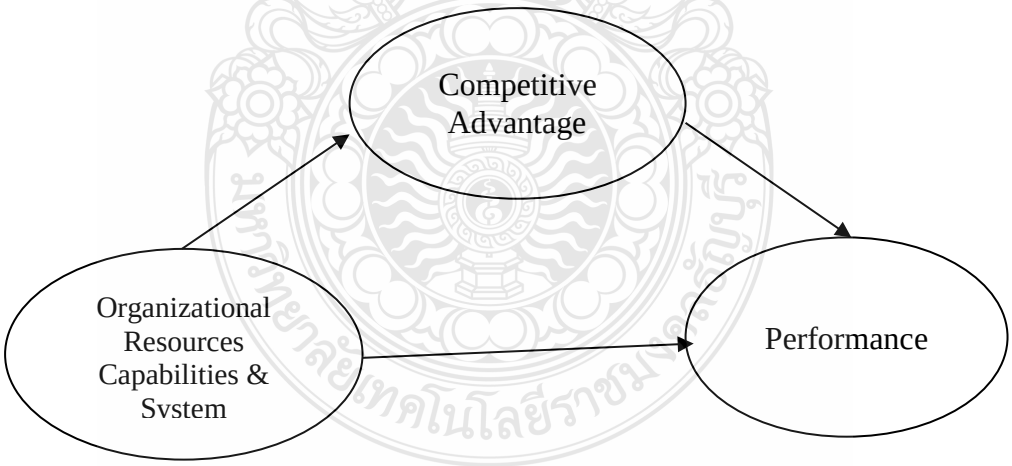


Figure 2.10 Relationship Between Competitive Advantage and Performance Model (Raduan et al., 2009)

This model is conducted by Raduan et al. (2009). They found that the organization resources, capabilities and system, in term Resource-based View, have positive relationship to competitive advantage and organization performance. They summarized that the RBV of organization's competitive advantage is an important key of strategic management theories which has developed to comfort the managerial needs of the organization and positive influence the organization performance.

The study of King et al. (2001) asserted that middle management harmony on successfully supervising competencies is related with higher performance. The organizations should introduce methods that look for middle managers' views of organizational competencies. So the middle managers should uphold an ongoing conversation concerning their institution's competencies. These processes allow managers to check their organizations' competencies and approval about competencies by surveying. The middle managers should talk for their beliefs about precious competencies. Furthermore, the managers can use information technology and internets to make easy online communities of middle managers all over the organization. These processes may help to expect the competencies that the firm will need to develop for future victory advantage.

Ravichandran and Lertwongsatien (2005) conducted a study which evidenced that IS capabilities have positive effect on IT support for core competencies, and the IT support for core competencies influenced firm performance. When the organization is able to use IS capabilities and efficient IT to support and enhance its core competencies, it leads to increased firm performance.

Rivard et al. (2006) reported their study that IT support for strategy directs effect on industry force and performance. There is no indirect strategy effect between IT support for strategy and performance. The IT support for competencies in term of firm assets strongly affect on IT support for strategy and it directs effect profitability, while IT support for competencies indirect effect performance via IT support for strategy. In brief, this study indicated that an integrated RBV and competitive strategy was contributed model of IT to firm performance.

Hasan (2008) developed framework for firm performance by linking between IT competency and firm performance through organizational learning capability as the

mediator. The results asserted that IT competency positively influences on firm performance (profitability, ROI, customer retention, and sale growth) and organizational learning capability which is an important mediator affect on firm performance. Moreover, Knowledge Strategy which comprise codification and personality is moderator that impact the relationship between IT competency and organizational learning capability.

Chen et al.(2010) reviewed and proposed the model for creating competitive advantage by aligning IS strategy and business strategy for strategic management both IS function plan and used of IS to support business plan as an organizational perspective on the firm's investment. They propose three conceptions of IS strategy including: (1) IS strategy as the use of IS to support business strategy; (2) IS strategy as the master plan of IS function; and (3) IS strategy as the share view of the IS role with in the organization for future research.

Majeed (2011) examined the relation of competencies and the firm performance which measured in term of ROA (Return On Assets) and sales growth ratio which were measured in financial perspective. The results revealed that there is a relationship between firm's competitive advantage and organizational performance. Moreover, this study asserted that the middle management level on competencies was related for gaining the high performance.

We can summarize the review literature for IT support for competencies in competitive advantage perspective was shown in Table 2.3.

Table 2.3 Review Literature of Core Competencies/Competitive Advantage

Authors	Title	Constructs	Finding
King et al. (2001)	Managing Organizational Competencies for Competitive Advantage: The Middle-Management Edge	- Competency Characteristic - Knowledge and skill - Competitive Advantage - Firm Performance	This paper propose the results of identify and examine key characteristics of competencies and the relationship between middle management insights of competencies and firm performance. They study of 17 middle manager from the organizations in two industries: textile manufacturing and hospital. The results illustrate that there is relationship between middle management insights of competencies and firm performance which successfully supervising competencies is related with higher performance. The managers can use information technology and internets to make easy online communities of middle managers all over the organization.
Ravichandran and Lertwongsatien (2005).	Effect of Information Systems Resources and Capabilities on Firm Performance : A Resource-Based Perspective.	- IS Human Capital - IT Infrastructure Flexibility - IS Partnership Quality - IS Capabilities - IT Support for Core Competencies - Firm Performance	They studied about IS resources and capabilities on RBV theory that affects on firm performance. This methodology was done by mailing questionnaires to senior IS executives of firms in the United States. The results revealed that a firm's performance was explained by extent for using IT to support and enhance the firm's core competencies. It's capabilities were the channel to develop distinctive firm competencies. Moreover, the organization's abilities to use IT to support it's core competencies depend on IS functional capabilities, which in turn depend on the nature of human resource, technology, and relationship resources of the IS department in terms of the resources-based view. They assert that IS Capabilities have positive effect on IT support for core competencies, and the IT support for core competencies influenced firm performance.

Table 2.3 Review Literature of Core Competencies/Competitive Advantage (Cont.)

Authors	Title	Constructs	Finding
Rivard et al. (2006)	Resource-based view and competitive strategy: An integrated model of the contribution of information technology to firm performance.	- IT support for firm Assets - IT support for firm Strategy - Industry Force - Performance	The purpose of this study is to examine an integrated model between Barney's theory resource-based view and Porter's competitive strategy framework for contribute the firm performance. They survey of 96 small- and medium-sized enterprises (SME). The results show that the IT support for competencies in term of firm assets strongly affect on IT support for strategy and it directs effect on profitability. The IT support for competencies indirect effect performance via IT support for strategy.
Hasan (2008).	IT Competency and firm performance: The role of Organizational Learning Capability in Indonesia Manufacturing firms.	- IT competency - Organizational Learning Capability - Knowledge Strategy - Firm Performance	The purpose of this study were to develop framework for firm performance by linking between IT competency and firm performance through organizational learning capability as the mediator, 2) investigate the theory of the knowledge Strategy as moderate the relationship between IT competency and organizational learning capability. The results assert that IT competency positively influences on firm performance (profitability, ROI, customer retention, and sale growth) and organizational learning capability which is an important mediator affect on firm performance. Moreover, Knowledge Strategy which comprise codification and personality is moderator that impact the relationship between IT competency and organizational learning capability.

Table 2.3 Review Literature of Core Competencies/Competitive Advantage (Cont.)

Authors	Title	Constructs	Finding
Chen et al.(2010)	Information Systems Strategy: Reconceptualization, Measurement, and Implications	- IS strategy - Business Strategy - IS strategic alignment - Competitive advantage	This study review and propose the model for created competitive advantage by aligning IS strategy and business strategy for strategic management both IS function plan and used of IS to support business plan as an organizational perspective on the firm's investment. They propose three conceptions of IS strategy including: (1) IS strategy as the use of IS to support business strategy; (2) IS strategy as the master plan of IS function; and (3) IS strategy as the share view of the IS role with in the organization.
Majeed (2011)	The impact of competitive advantage on Organizational Performance	- Competitive advantage - Organizational Performance	The purpose of this study is to examine the relation of competencies and the firm performance. The performance was measure in term of ROA (Return On Assets) and sales growth ratio which are measured in financial perspective. The results reveal that there is a relationship between firm's competitive advantage and organizational performance. Moreover, this study assert that the middle management level on competencies is related for gaining the high performance.

2.5 Organization Performance

The importance of organization's operation is the measurements for the success of quality assurance by establishing quality indicators which are the administrator's tools indicate the outcomes from the operations. It is also used to make a decision for both tactical level and operational level (Melville et al., 2004; Mithas el al., 2011). In general term, the organizations use performance to measure success and to achieve the organization's goals.

Performance is the result of activities of an organization or investment over a given period of time (Mithas el al., 2011). Performance is measured by a combination of profitability, size of firm, market share, and sales growth relative to the firm's largest competitor. The measures are adopted from the PIMS studies (Profit Impact of Market Strategy), according to Buzzell and Gale (1987). The performance measurement is the process which businesses, governments and other organizations establish acriteria to determine the quality of their activities. It is based on organizational goals. It involves creating a simple but effective system for determining whether organizations meet the objectives. There are nine factors critical IS capabilities that affect on firm performance including leadership, business systems thinking, relationship building, architecture planning, making technology work, informed buying, contract facilitation, contract monitoring, and vendor development. Anecdotal evidences used to argue that these capabilities can have a direct affect on firm performance (Feeny & Willcocks, 1998).

Santhanam and Hartono (2003) said that firm performance is the results of operation to achieve the firm's goals by using IT resources, IT capability and organization capabilities. Firm performance can measures from eight financial performance which are five profit ratio and three cost ratio.

Melville et al. (2004) defined organization performance is the results of operation to achieve the firm's goals by using IT Business value model generate the business processes for attain the business processes performance and organization performance.

The definition of organization performance in IS discipline, Oh and Pinsonneault (2007) said that organization performance is the results of operation to achieve the firm's goals by using IT resources and align Business Strategy with IS

Strategy to achieve organization Performance. Organization Performance use financial measure that are expense and revenue.

From above, we can define the meaning of organization performance is the results of organization's operation or activities by using IT Business value model or IS resource for achieving the organization goals.

Business Performance Management (BPM) is a set of activities that helps organizations optimize their business performance. The Business Performance Management focuses on planning and forecasting to help with the competent use of their business resources (Chen et al., 2006). BPM is a set of management and analytic processes that enable the management of an organization's performance to achieve one or more pre-selected goals. Synonyms for "business performance management" include "corporate performance management" and "enterprise performance management" (Frolick et al., 2006). The another definition, BPM is a series of processes and applications designed to optimize the execution of business strategy. It includes planning, budgeting, forecasting, and consolidation all above application (Mojdeh, 2005). Similary, VomBrocke and Rosemann (2010) defined that business performance management is contained within approaches to business process management that has three main activities: selection of goals, consolidation of measurement information relevant to an organization's progress against the goals , and interventions made by managers in light of this information with a view to improve future performance against the goals.

In general, the organization uses organization performance to measure the process outcomes and usually measure in term of ROA (Return On Assets) and Sales Growth Ratio, these measurements are financial performance (Majeed, 2011). The organization performance can measure from many criteria such as, Balance Scorecard (Kaplan and Norton; 1992), Baldrige criteria.

Baldrige Criteria

Baldrige Criteria or Baldrige Performance Excellence Program is a index or program to measure the organization performance which created by Congress in 1987 (NIST, 2013-2014). It is created and managed by the National Institute of Standards and Technology (NIST), an agency of the United State Department of Commerce. This

program helps organizations use as tools to succeed in competitive global marketplace, improve their performance and achieve their goals.

The Baldrige Criteria for Performance Excellence authorize the organization to achieve the organization goals, improve the results of operation, and turn it to more competitive by aligning organization plans, processes, human, actions, decision, and results. This criteria provide the tools to examine the holistic assessment of the organization management system and improve processes and results, this criteria can use for any organization, no matter the size or industry (NIST, 2013-2014).

This criteria comprises seven critical viewpoints with a set of questions for managing and performing as an organization: 1) leadership, 2) strategic planning, 3) customer focus, 4) measurement, analysis, and knowledge management, 5) workforce focus, 6) operations focus, and 7) results (NIST, 2013-2014). The seven viewpoints are shown in Figure 2.11.

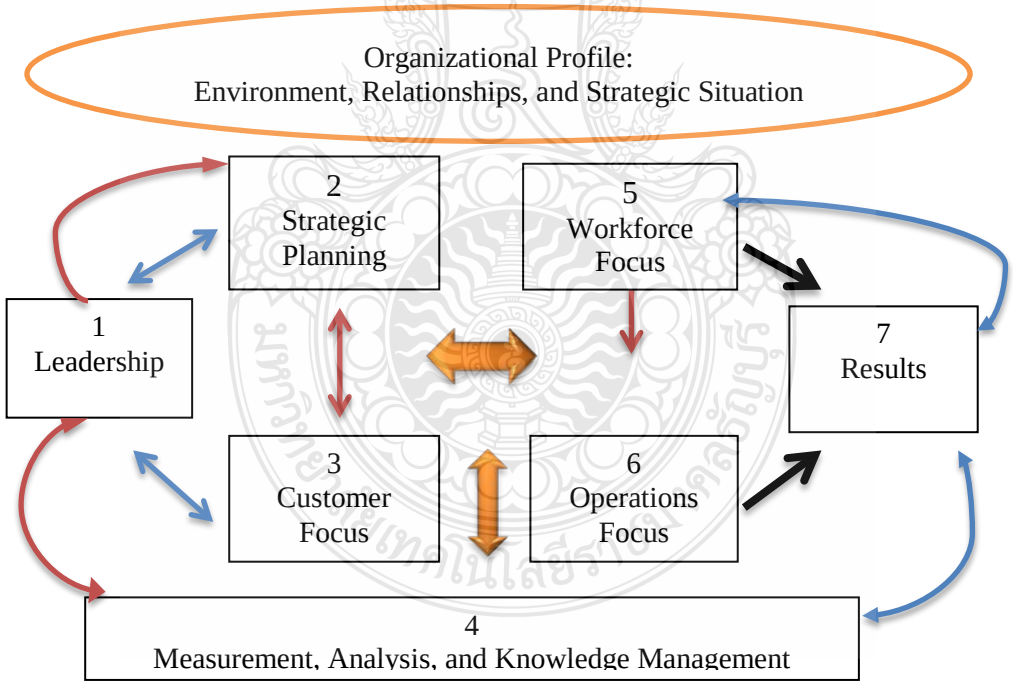


Figure 2.11 The seven critical viewpoints of Baldrige Criteria (NIST, 2013-2014)

1. Leadership category is a part to describe How senior leaders' personal actions, organization's governance system, explains How senior leaders' create an environment for customer engagement , and communicate with their workforce and key customers include ethic, legal, social responsibility , and community (NIST, 2013-2014).

2. Strategic Planning type describe How the organization develops strategic, objective, and action plans, Strategy implementation which explains How the organization convert its strategic objective into action plans, summarize its action plans, and its key measures or indicators of progress (NIST, 2013-2014).

3. **Customer Focus** section explain How the organization engages its customers for long-term marketplace success, listen to the voice of customers and their satisfaction for using their information to improve processes and operation, and builds good customer relationships (NIST, 2013-2014).

4. Measurement, Analysis, and Knowledge Management category describes whereby the organization selects, collects, analyzes, manages, and improves its information, knowledge assets and manages information technology for support decision making includes how measures and achieves the organization performance (NIST, 2013-2014).

5. Workforce Focus division describes about the organization assesses workforce capability, build a workforce environment to engages, manages, and progresses its workforce for achieves high performance (NIST, 2013-2014).

6. **Operations Focus** category describes How the organization designs, manages, and enhances its products and work processes and increases operational effectiveness for delivery customer value and achieves the organization performance sustainability (NIST, 2013-2014).

7. Results section depicts about organization performance and the process to get the performance in three dimensions: customer-focused product and process results, work process effectiveness results**,** and supply-chain management results (NIST, 2013-2014).

This criteria is used as tool to measured the organization performance, many researchers and practitioners adapted and adopted this criteria for assessment the organization performance in their studies. Mithas el al. (2011) developed Baldrige Criteria to measured the organization performance in four dimensions: financial, customer, human resources, and organizational effectiveness which is similar balanced scorecard of Kaplan and Norton's theory in 1996. The details of organization performance in four dimensions which developed by Mithas el al. (2011) as below.

1. Financial Performance is the summary of the organization's key financial and marketplace performance results that measures indicator of financial performance about trends in return on investment, profitability, liquidity, market share, and business growth (Mithas et al., 2011).

2. Customer Performance is the summary of the organization's key customer-focus results that measures from the levels and trends of customer satisfaction, customer relation, positive referral and product and services performance (Mithas et al., 2011).

3. Human Resource Performance is the summary of the organization's key human resource results that measures indicator of human resource performance in employee satisfaction, employee development, job rotation, work layout, and organization learning (Mithas et al., 2011).

4. Organizational Effectiveness Performance is the summary of the organization's key indicator that measures the achievement of organizational effectiveness from the operational performance of important design, production, delivery business and support processes for example, productivity and supplier performance (Mithas et al., 2011).

Santhanam and Hartono (2003) investigate the IT Capability can create firm performance by replicating and extending Bharadwaj 's (2000) RBV framework . The results assert that the financial performance of firms that have superior IT Capability are higher than all other industry firms. Moreover, they insist that there is relationship between past and current financial performance.

Melville et al. (2004) review literature about IT business value by propose the model of IT business value in focal firm perspective consist of IT resources, complementary original resources, and business process, these constructs influence the

performance. Moreover, they use industry characteristics and trading partner resources and business processes in competitive environment perspective, and country characteristics in macro environment perspective.

Ravichandran and Lertwongsatien (2005) found that there are relationship between IS capabilities and IT support for core competencies. The relationship between IS resources and IS functional capabilities emphasis the path and time dependencies involved in using IT in pursuance the firm strategies. The organization that is successful in using IT support for core competencies will get higher firm performance.

Identically, the results of Hasan (2008) revealed that IT competency positively and significantly influences on overall firm performance (profitability, ROI, customer retention, and sale growth) and organizational learning capability which is an important determination of overall firm performance.

Later, Leidner et al. (2010) develop model of IS Strategy and performance. The results found that define clearly IS Strategy and perform with IS Strategy will get firm performance better than the organizations work without IS Strategy. The organizations performance different affect on satisfaction with the IS department and satisfaction with CIO such that CIOs overseeing an Innovator strategy experience lower satisfaction from their than CIOs overseeing a Conservative strategy. They assert that firm with no IS strategy should be aware negative outcomes achieve performance less than firm which has IS strategy.

Mithas et al. (2011) developed a linkage model between Information Management Capability and Organization Capability to create organization performance based on the Baldrige criteria. The results revealed that Information Management Capability influences the organization Capability, while organization capability that the mediators variable effected on organization performance. Finally, the information management capability affects on organization performance through organization capability.

Majeed (2011) examined the relation of competencies and the firm performance which measured in term of ROA (Return On Assets) and sales growth ratio in financial perspective. The results revealed that there is a relationship between firm's competitive advantage and organizational performance. Moreover, they asserted that

the middle management level on competencies is related for gaining the high performance.

The results of Subriadi et al. (2013) revealed that IT resources had significant effected on IT capability, and performance. IT capability had significant effected on IT Support for Core Competence, and IT Support for Core Competence had effected on performance. Moreover, they asserted that IT resources were materials to developed firm ability by creating IT-Base capability from adopted IT strategic alignment by aligning IT goals with business goals. Furthermore, IT resources had direct effected on performance higher than indirect effect through mediator.

Moreover, the results of Gerow et al. (2014) study found that the alignment dimension had relationship with the different performance types (financial performance, productivity, and customer benefit). This study contributed the literature by explaining the relationships between alignment and performance outcomes and presenting insight the sources of both consistency and inconsistency research, and guideline to research in the future.

Regarding the above contents, the below summary of organization performance is shown in Table 2.4

Table 2.4 Review Literature of Organization Performance

Authors	Title	Constructs	Finding
Santhanam and Hartono (2003)	Issue in Linking Information Technology Capability to Firm Performance	IT Capability Firm Performance	The purpose of this study wanted to investigate the IT Capability can create firm performance. They used resource-based view (RBV) framework by replicating and extending Bharadwaj 's (2000) framework . They used source data from Compustat database during period 1991 through 1994 and multidimensional measured performance from financial performance which are profit ratio and cost ratio. The method was selecting leaders of industry firms by asking them to identify and rank the firm that they perceived to had firm superior IT Capability. The results asserted that the financial performance of firms that had superior IT Capability were higher than all other industry firms. Moreover, they insist that there was relationship between past and current financial performance.
Melville et al. (2004)	Review: Information Technology and Organizational Performance: An integrative Model of IT Business Value.	IT Business Value Organization Performance	The purpose of this study was review literature about IT business value for develop a model of IT business value from theory and researches based on resource-based view and investigate relationship between IT business value and organization performance. They proposed the model of IT business value in focal firm perspective consist of IT resources, complementary original resources, and business process, these constructs influence the performance. Moreover, they used industry characteristics and trading partner resources and business processes in competitive environment perspective, and country characteristics in macro environment perspective.

Table 2.4 Review Literature of Organization Performance (Cont.)

Authors	Title	Constructs	Finding
Rivard et al. (2006)	Resource-based view and competitive strategy: An integrated model of the contribution of information technology to firm performance.	- IT support for firm Assets - IT support for firm Strategy - Industry Force - Performance	The purpose of this study was to examine an integrated model between Barney's theory resource-based view and Porter's competitive strategy framework for contribute the firm performance. They surveyed of 96 small- and medium-sized enterprises (SME). The results showed that the IT support for competencies in term of firm assets strongly affect on IT support for strategy and it directs effect on profitability. The IT support for competencies indirect effected performance via IT support for strategy.
Oh and Pinsonneault (2007)	On The Assessment Of The Strategic Value Of Information Technologies: Conceptual and Analytical Approach	Business Strategy IS Strategy Organization Performance	This study used strategic IT alignment by compare two conceptual (RBV and contingency-base) and two analytical (Linear and Nonlinear) to measure the organization performance. They surveyed by collect from CEO and CIO of 110 firms, the result revealed that RBV and contingency-based approaches the resource-centered and contingency based approaches can explain the impact of IT applications on firm performance. Alignment between business strategy and information systems strategy could reduce cost. Moreover, the firm that were high-end strategic alignment could leads to superior performance more than other firm that are low strategic alignment.

Table 2.4 Review Literature of Organization Performance (Cont.)

Authors	Title	Constructs	Finding
Hasan (2008).	IT Competency and firm performance: The role of Organizational Learning Capability in Indonesia Manufacturing firms.	- IT competency - Organizational Learning Capability - Knowledge Strategy - Firm Performance	The purpose of this study were developed framework for firm performance by linking between IT competency and firm performance through organizational learning capability as the mediator, 2) investigated the theory of the knowledge Strategy as moderate the relationship between IT competency and organizational learning capability. The results asserted that IT competency positively influenced on firm performance (profitability, ROI, customer retention, and sale growth) and organizational learning capability which was an important mediator affected on firm performance. Moreover, Knowledge Strategy which comprised codification and personality was moderator that impacted the relationship between IT competency and organizational learning capability.
Leidner et al. (2010)	An Empirical Investigation Of IS Strategy And IS Contribution To Firm Performance	- IS Strategy - Firm Performance	The purpose of this study were to develop and test model of IS Strategy and performance. The organizations that defined clearly IS Strategy and perform with IS Strategy would get firm performance better than the organizations work without IS Strategy. The organizations performance different affected on satisfaction with the IS department and satisfaction with CIO such that CIOs overseeing an Innovator strategy experience lower satisfaction from their than CIOs overseeing a Conservative strategy. They asserted that firm with no IS strategy should be aware negative outcomes achieve performance less than firm which has IS strategy.

Table 2.4 Review Literature of Organization Performance (Cont.)

Authors	Title	Constructs	Finding
Mithas et al. (2011)	How Information Management Capability Influences Firm Performance	1. Information Management Capability 2. Organization Capability 3. Organization Performance 3.1 Customer Performance 3.2 Financial Performance 3.3 Human Resource Performance 3.4Organizational Effectiveness Performance	The purpose of this study was developing a linkage model between Information Management Capability and Organization Capability to create organization performance. They collected the data by using actual score from high quality assessment of a conglomerate business group based on the Baldrige criteria. The results revealed that Information Management Capability influences the organization Capability. The organization Capability consisted three components that the information management capability had strongest effect on performance management, followed by process management, and customer management. While organization capability that the mediators variable effected on organization performance. The organization performance in this study measured from customer performance, financial performance, human resource performance and organizational effectiveness performance. Finally, the information management capability affected on organization performance through organization capability.

Table 2.4 Review Literature of Organization Performance (Cont.)

Authors	Title	Constructs	Finding
Tallon and Pinsonneault (2011)	Computing Perspective on the Link Between Strategic Information Technology Alignment and Organizational Agility : Insights from a Mediation Model	- Strategic IT Alignment - Firm Agility - Firm Performance - IT Flexibility	The purpose of this study tested the Strategic IT Alignment influence the firm performance by using the agility as the mediator variable to link between the Strategic IT Alignment and firm performance. They used IT Flexibility and Environmental Volatility as the mediating effect of the model. They use data from matched survey of IT and business exclusives from 241 firms by using questionnaires. The result showed that Strategic IT Alignment had no direct effect to firm performance but it indirect on firm performance through agility as mediator that environmental volatility positively moderates the link between agility and firm performance.
Majeed (2011)	The impact of competitive advantage on Organizational Performance	- Competitive advantage - Organizational Performance	The purpose of this study was to examine the relation of competencies and the firm performance. The performance was measured in term of ROA (Return On Assets) and sales growth ratio which were measured in financial perspective. The results revealed that there is a relationship between firm's competitive advantage and organizational performance. Moreover, this study asserted that the middle management level on competencies is related for gaining the high performance.

Table 2.4 Review Literature of Organization Performance (Cont.)

Authors	Title	Constructs	Finding
Subriadi et al. (2013)	Information technology Productivity Paradox : A Resource-Based View And Information Technology Strategic Alignment Perspective For Measuring Information Technology Contribution On Performance	- IT Strategic alignment - IT Resources - Firm Performance	The purpose of this study were measured firm performance by linking Resource-based View theory, IT Strategic Alignment rules were adopted in effort to align IT goals with business goals through IT-based Capability and IT Support for Core Competence. The results revealed that IT resources had significant effected on IT capability, and performance. IT capability had significant effected on IT Support for Core Competence, and IT Support for Core Competence had effected on performance. Moreover, they asserted that IT resources were materials to developed firm ability by creating IT-Base capability from adopted IT strategic alignment by aligning IT goals with business goals. Furthermore, IT resources had direct effected on performance higher than indirect effect through mediator.
Gerow et al. (2014)	Looking Toward the Future of IT-Business Strategic Alignment through the Past:A META-Analysis	- IT-Business alignment - Firm Performance	The purpose of this study was examined the relationship between IT-business strategic alignment by analyzed 30 years of alignment researches and used a Meta-Analysis. The results found that the alignment dimension (intellectual, operational, and cross domain) had relationship with the different performance types (financial performance, productivity, and customer benefit) and with many of the other constructs. This study contributed the literature by explaining the relationships between alignment and performance outcomes and presenting insight the sources of both consistency and inconsistency research, and guideline to research in the future.

Empirical studies confirm a positive impact of these processes on performance (Wagner et al. 2006) abound Information system (IS) strategy, the contribution of IS to organizational performance is likely to be as much a result of managerial objective (Leidner et al., 2010). IS strategy is the potential value IS brings an organization that practice and research have widely emphasized the need to carefully construct an IS strategy with a view towards complementing and/or enable to achieve organizational objectives. It can lead to the organization performance (Reich & Benbasat, 1996).

Cumps et al. (2006) found that the influence of different ICT strategies on alignment performance and how organizations which establish specific ICT management routines obtain, on average, better alignment performance scores.

The results of Chang et al. (2009) found that (1) Strategic alignment plays the most significant role in improving customer service quality compared with other two alignment factors and it becomes particularly influential to customer service quality when the enterprise has weak service integration. (2) Operational alignment contributes to customer service quality for enterprises with strong service integration (3) Social alignment effectively helps enterprises to improve customer service quality no matter their service integration is weak or strong.

Leidner et al. (2010) reported that the organizations that clearly define IS Strategy and perform with IS Strategy will get firm performance better than the organizations that work without IS Strategy. Similary, Kearns and Lederer (2001) asserted that Information intensity is an important antecedent effect to strategic IT alignment. The ITP-BP alignment is significantly related to the use of IT for competitive advantage and lead to the firm performance.

The results of Mithas et al. (2011) revealed that Information Management Capability influences the organization Capability, while organization capability that the mediators variable effected on organization performance. Finally, the information management capability affects on organization performance through organization capability. The results of this study consistent of the results of Ravichandran and Lertwongsatien (2005) found IT support for core competencies influenced the organization successful in will get higher firm performance. Likewise, the results of Hasan (2008) revealed that IT competency positively and significantly influences on

overall firm performance. Furthermore, Majeed (2011) asserted that there is a relationship between firm's competitive advantage and organizational performance. Similarly, the results of Subriadi et al. (2013) insisted that IT resources had significant effected on IT capability, and performance. IT capability had significant effected on IT Support for Core Competence, and IT Support for Core Competence had effected on performance. Moreover, they asserted that IT resources were materials to developed firm ability by creating IT-Base capability from adopted IT strategic alignment by aligning IT goals with business goals. Furthermore, IT resources had direct effected on performance higher than indirect effect through mediator. In addition, the results of Gerow et al. (2014) found that the alignment dimension had effected on firm performance. Moreover, they guideline to research in the future.

Regarding the above contents of four constructs, the below summary of these constructs are shown in Table 2.5

Table 2.5 Review Literature that relate this research

Title/Author	Strategic-IT Alignment	IS Capabilities /RBV	Core Competencies	Competitive Advantage	Performance
Managing Organizational Competencies for Competitive Advantage: The Middle-Management Edge. King et al. (2001).			✓	✓	✓
A Resource-Based View of Strategic IT Alignment: How Knowledge Sharing Creates Competitive Advantage. Kearns and Lederer (2003).	✓	✓		✓	
Issue in Linking Information Technology Capability to Firm Performance. Santhanam and Hartono (2003).		✓			✓
Review: The Resource-Based View and Information System Research: Review, Extension, and Suggestion for Future Research. Wade and Hulland (2004).		✓		✓	
Review: Information Technology and Organizational Performance: An integrative Model of IT Business Value. Melville et al. (2004)		✓			✓
Effect of Information Systems Resources and Capabilities on Firm Performance: A Resource-Based Perspective. Ravichandran and Lertwongsatien (2005).		✓	✓	✓	✓
Resource-Based View of The Inter-Organizational Information System Capability: A Field Study in Taiwan PC Industry. Chang et al., (2006).		✓			✓
Resource-based view and competitive strategy: An integrated model of the contribution of information technology to firm performance. Rivard et al., (2006)		✓		✓	✓

101

Table 2.5 Review Literature that relate this research (Cont.)

Title/Author	Strategic-IT Alignment	IS Capabilities /RBV	Core Competencies	Competitive Advantage	Performance
An Empirical Study on Business/ICT Alignment in European Organizations. Cumps et al., (2006).	✓.				✓.
On The Assessment Of The Strategic Value Of Information Technologies: Conceptual and Analytical Approach. Oh and Pinsonneault (2007)	✓.				✓.
IT Competency and firm performance: The role of Organizational Learning Capability in Indonesia Manufacturing firms. Hasan (2008).		✓	✓		✓
Business Performance, Business Strategy, and Information System Strategic Alignment: An Empirical Study on Chinese Firms. Xiaoying et al. (2008)	✓				✓
Assessing IT- Business Alignment in Service-Oriented Enterprises. Chang et al. (2009).	✓				
An Empirical Investigation of IS Strategy and IS Contribution to Firm Performance. Leidner et al. (2010).	✓				✓
Information Technology Strategy and Business Strategy Alignment and Its Effects on Information Technology Effectiveness of Thai Business Organizations. Jassapalo (2010).	✓				
Information Systems Strategy: Reconceptualization, Measurement, and Implications. Chen et al. (2010).	✓			✓	

102

Table 2.5 Review Literature that relate this research (Cont.)

Title/Author	Strategic-IT Alignment	IS Capabilities /RBV	Core Competencies	Competitive Advantage	Performance
The Impact of Competitive Advantage on Organizational Performance. Majeed (2011).				✓	✓
Computing Perspective on the Link Between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model. Tallon and Pinsonneault (2011)	✓				✓
How Information Management Capability Influences Firm Performance. Mithas et al. (2011)		✓			✓
The Construction Of Firm's IT Capability And Its Impact On IT Assimilation: An Empirical Investigation In China. Yin and Yang (2011)		✓		✓	
The Strategic Alignment between Competitive Strategy and Dynamic Capability and its Impact on E-business Value. Rashidirad et al. (2012)	✓			✓	
The Effect Of IT Complementary Resources On Fast Growth Small-to-Medium Enterprise Performance: A Resource-Base View. Bi et al. (2013)	✓	✓			✓
Information technology Productivity Paradox: A Resource-Based View And Information Technology Strategic Alignment Perspective For Measuring Information Technology Contribution On Performance. Subriadi et al., (2013)	✓	✓			✓
Looking Toward the Future of IT-Business Strategic Alignment through the Past:A META-Analysis. Gerow et al., (2014)	✓				✓

103

2.6 Chapter Summary

Strategic IT Alignment is the hot topic in Information Technology and Information System issues. From the above researches, it can be found that the usage of Information Technology and Information System. Strategic IT Alignment will reach the business goals. It increases the organizations performance and creates competitive advantages. Furthermore, any organization that use Strategic IT Alignment by aligning the business plan and IT plan, and integrate with IS resources can affect on IT Support for core competency. When the firm can use IS resources with IT capabilities to process the functions and get efficiency to support core competency of firm and the results can lead to achieve organization performance.

Chapter two reviews the literatures from both academicians' and practitioners' perspectives regarding strategic IT alignment, IS resources capabilities, IT support for core competencies, and the organization performance. The study also focuses on the organizations are in listing of the Stock Exchange of Thailand (SET) which are in Thailand context. The next chapter will discuss on the research methodology including populations, samples, data collection, and data analysis.

CHAPTER 3
RESEARCH METHODOLOGY

This chapter begins with model/theoretical framework and then describes the research design which consists of generate research hypothesis, research develop instruments, population and sample, reliability analysis, validity analysis, data collection, data analysis, and time table. The chapter concludes with a summary of relevant points and an overview of the next chapter.

3.1 Model/Theoretical Framework

There are four constructs consisting of strategic IT alignment, IS Capabilities, IT support for core competence, and organization performance. Firstly, strategic IT alignment were developed from three academic researches. At the beginning, Henderson and Venkatraman (1999) proposed that the strategic IT alignment was an integrated model between business strategy and IS strategy. It can drive the organization's capabilities and force technology to achieve the organization goal and to accomplish competitive advantage. The IT consists four components; business strategy, IS strategy, organization infrastructure, and IT infrastructure. The organization can use strategic IT alignment by aligning the business plan and IT plan together, then processing with using the IT/IS resources to get the organization performance. Similarly to the study of Kearns and Lederer (2003), they found that the strategic IT alignment was the best factor that explained the competitive advantage by aligning between IT plans and business plans. Also they are significantly, positively related to the usage of IT for competitive advantage. The third study was done by Beeson and Mahamid (2003). Their finding revealed that the business manager and IT manager have positive attitude with regard to importance of the strategic alignment. They understand and know the needs of each other. They assert the strategic alignment is an important indicator of business and IT managers acknowledge and prepare the business strategy and IS strategy together at the same time. Further, Rashidirad et al. (2012) proposed the conceptual model of strategic IT alignment leaded to E-business value creation by linking competitive strategy with dynamic capability.

The second construct is IS Capabilities which were developed from three academic researches. First at all, Day (1994) and Wade and Hulland (2004) confirmed the concept about IS Capabilities in three dimensions; Inside-Out capabilities, Outside-In capabilities, and spanning capabilities which influence on the firm performance. Secondly, Rivard et al. (2006) found that IT supporting for strategy directly affected on performance, IT supporting for firm assets strongly affected on IT supporting for strategy, and it directly affected on profitability and performance. This study indicated that an integrated IS Capabilities and competitive strategy was the best model for contribution of IT to the firm performance. The third study was run by Chang et al. (2006). They asserted that physical IT assets and relational specific intangibility are positively related with IOS (Interorganizational Information System) usage. This study indicated that the firms with more IOS usage are more likely to achieve better on the firm performance. Likewise, Yin and Yang (2011) proposed competitive advantage model by linked IT Capabilities and IT support for core competencies, the results revealed that IT Capabilities influenced IT support for core competencies.

The third construct is IT support for core competencies which were developed from two academic researchers. Firstly, Ravichandran and Lertwongsatien (2005) indicated that IS capabilities had positive effect on IT supporting for core competencies, and IT supporting for core competencies had influence on a firm performance relatively. This study evidenced that when the organization was able to use IS capabilities and efficient IT to support and enhance its core competencies. Then it can increase the performance. In the same way, Rivard et al. (2006) were engaged in their research and then indicated that IT supporting for competencies affected on performance, and the integrated RBV and competitive strategy affected on firm performance. Likewise, Majeed (2011) proposed the best model of organization performance by studying the relationship between competitive advantage and organization performance. Moreover, the result of Subriadi et al.(2013) study asserted that IT strategic alignment which adopted by aligning IT goals with business goals through IT-base capability influenced IT support for core competency and IT support for core competency affected on firm performance.

The final construct is the organization performance which is developed from both academic researchers and practitioners. At first, Santhanam and Hartono (2003) investigate the IT capability can create firm performance. They apply resource-based view framework by replicating and extending Bharadwaj's (2000) framework. They use source data from Compustat database during period 1991 through 1994 and multidimensional measure financial performance from profit ratio and cost ratio. The results show that the effectively leverage of firm's abilities with it's IT investments by creating a strong IT capability which can affect on enhancing firm performance. Similarly to the study of Melville et al. (2004), they develop the mixed model of IT business value based on the resource-based view. The IT business value model consists of IT resources and complementary organizational resources integrate with business process. This model use multidimensional constructs. The results indicate that the IT business value which create from the resource-based view and business process affect on the organization performance. The third study is Mithas et al. (2011), their concept likewise Balanced Scorecard of Kaplan and Norton (1992). They use Baldrige Criteria which is a Quality Management (QM) measurement for achieving excellent firm performance. They build multidimensional model by linking Information Management Capability and Organization Capability for creating firm performance. They measure the organization performance in four perspectives including organization performance in financial perspective, organization performance in customer perspective, organization performance in human resource perspective, and organization performance in organizational effectiveness perspective. The results assert that information management capabilities influence the organization performance through organization capability.

According to the description of four constructs mentioned above, the research model was drawn and shown in Figure 3.1. It is the model theoretical framework of this study which is based on the literature review.

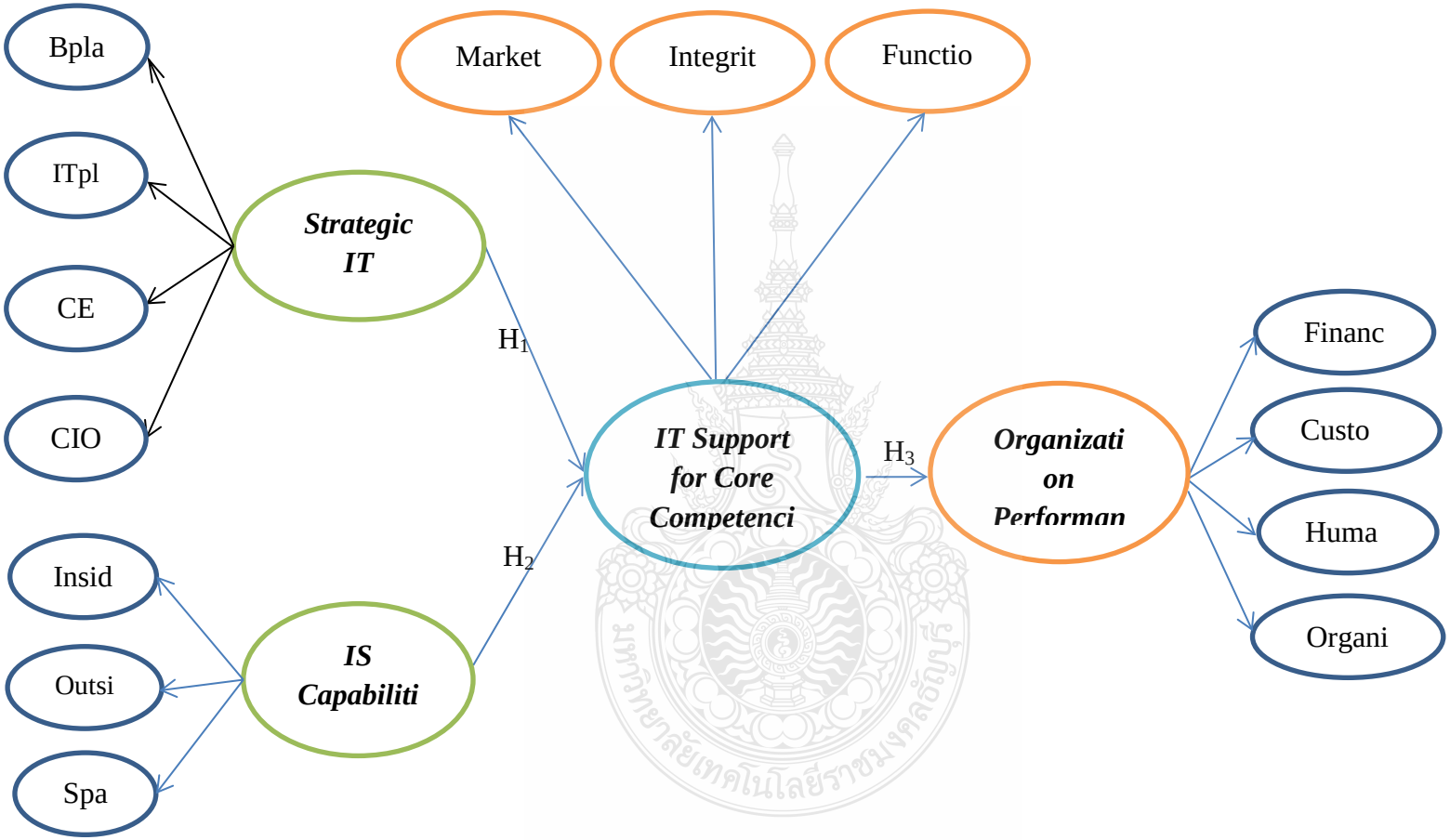


Figure 3.1 Model/Theoretical Framework

3.2 Research Hypothesis

The theoretical framework depicted in figure 3.1 was converted into three hypothesis. To start with, the relationships between strategic IT alignment dimensions and IT supporting for core competencies were developed. Several studies from both academicians and practitioners confirmed the relationship between strategic IT alignment and IT supporting for competencies. Kearns and Leader (2003) asserted that the strategic IT alignment, which aligned between IT plan and business plan by the CEO participation in IT plan and the CIO participation in business plan, influence the IT usage for competitive advantage. Since, the CIO of IT department participated in business plan meeting, they contribute to business goals. They usually contacted with top management, and accessed to the CEO to improve the alignment between IT strategies and business strategies. They encouraged the identification and understand the apparent information systems and technologies to support the business strategies. Likewise, the CEO are able to gain more knowledge about IT opportunities within firms. They are able to understand how to use IT as a strategic resources to support core functionalities for achieving competitive advantage. Oh and Pinsonneault (2007) revealed that the alignment between business strategy and Information System strategy on cost reduction had negative with firm expense. While the resource-based view can predict the ability of IT effect on firm revenue and profitability. Likewise Tallon and Pinsonneault (2011) summarized that the strategic IT alignment has no direct effect to firm performance but it indirect affect on firm performance through agility as mediator that environmental volatility positively moderates the link between agility and firm performance. Therefore, if the organization manages the strategic IT alignment both in business and in IT department appropriately. They will know how to use IT support for their core functionalities. This affects on the core competencies and will lead to achieve the firm performance. Furthermore, Subriadi et al.(2013) asserted that IT strategic alignment which adopted by aligning IT goals with business goals through IT-base capability influenced IT support for core competency. According to the concepts mentioned above, the research hypothesis were developed as follows;

H1a: There is a positive relationship between BP-ITP alignment and IT support for core competencies.

H1b: There is a positive relationship between ITP-BP alignment and IT support for core competencies.

H1c: There is a positive relationship between CEO participation and IT support for core competencies.

H1d: There is a positive relationship between CIO participation and IT support for core competencies.

Considering the relationship between IS resources or IS Capabilities in Resource-Based View (RBV) and IT support for core competencies, Penrose's (1959) and Chamberlin (1933) asserted that the RBV can create the competitive advantage. Barney (1991) also confirmed that the resources and capabilities that are valuable, rare, imitable, and non substitute, can become the firm's core competencies. These will result in competitive advantage. Moreover, Day (1994) proposed that the resources in IS disciplines should be considered in term of IS resource capabilities. The typology of IS resource capabilities have three types including inside-out, outside-in, and spanning. In addition, Wade and Hulland (2004) presented that the IS resources capabilities are available and useful to contribute direct effect on competitive advantage. There are many studies that confirm the relationships between IS resources / RBV and IT support for core competencies. Mata et al. (1995) found that IS resources or IS Capabilities lead to competitive advantage. Also Ravichandran and Lertwongsatien (2005) summarized that IS capabilities are defined as resource-based view which affects on IT supporting for core competencies by the organization. They are able to use RBV with IT to support functionalities of their firms, and enhance its core competencies. Likewise, Rivard et al. (2006) clarified that using IT supporting firm assets dimension RBV had influence on IT supporting for strategies. Furthermore, Mithas et al. (2011) indicated that the information management capability play an important role for developing the firm's resources in resource-based view such as IT infrastructure, hardware, software and other tools. They asserted that the information management capability affect on organization performance through organization capability. Referring to the particulars mentioned above, the following hypothesis were conducted.

H2a: There is a positive relationship between inside-out capabilities and IT support for core competencies.

H2b: There is a positive relationship between outside-in capabilities and IT support for core competencies.

H2c: There is a positive relationship between spanning capabilities and IT support for core competencies

The following two research hypothesis were associated with the direct relationship for two pairs; ***the first*** - between strategic IT alignment and IT support for core competencies, ***the second*** - between IS resources and IT support for core competencies. The final hypothesis is explored the direct relationship between IT support for core competencies and organization performance. Hoffman (1999) proposed that the development competency bases the standard for workplace. It can achieve the firm performance. The concept of core competencies was developed from RBV of firm or IS resources capabilities that focused on competitive advantage (Wernerfelt, 1984). In the same way, Srivastava (2005) focused core competencies as dynamic learning resources. That is to say, the competency is the ability of a firm to identify and deploy its hierarchy of competencies to attain the competitive advantage. Similarly, Hamel and Praharad (1990) emphasized that core competency is an organization's value to create skills, capabilities, and resources that look like its competitive weapons. Afterwards, Ravichandran and Lertwongsatien (2005) summarized that the organization is able to use IT capabilities and efficient IT to support the firm's functionalities and enhance its core competencies, which will have a result in increasing the firm performance. Similarly, Hasan (2008) pointed out that IT competency positively and significantly influenced on the firm performance. Moreover, Majeed (2011) summarized that competitive advantage affected on the firm performance by the development of new qualities of firm's products which are different from the other firms. Likewise, Mithas et al., (2011) proposed conceptual model for measure the organizations performance by linking with information management capabilities. This can create the firm's core competencies and will lead to get the firm performance. Moreover, Subriadi, et al (2013) asserted that IT strategic alignment which adopted by aligning IT goals with business goals through IT-base capability

influenced IT support for core competency, and IT support for core competency influenced the organization performance. Since this study concerned with the organizations which are in listing of the Stock Exchange of Thailand (SET) which are under controlled by Securities and Exchange Commission(SEC) so, the final hypothesis was conducted below.

H3a: There is a positive relationship between IT support for core competencies and organization performance in financial perspective.

H3b: There is a positive relationship between IT support for core competencies and organization performance in customer perspective.

H3c: There is a positive relationship between IT support for core competencies and organization performance in human resource perspective.

H3d: There is a positive relationship between IT support for core competencies and organization performance in organizational effectiveness perspective.

3.3 Research Design

This research is a combination of qualitative and quantitative research. The target population and random sampling are from organizations that are in listing companies of The Stock Exchange of Thailand(SET), that are divided into nine categories, the details were shown in Table 3.2. Structured questionnaires and recommendation form are used as instruments for collecting data. The instruments are also operated with chiefs information officers (CIO) or chiefs of IS department. In addition, the recommendation form are done with CIO of each organization. The data are collected by mail and e-mail. That is close-ended questionnaires are sent to CIO of the organizations by random sampling from the name of the listing organization of the Stock Exchange of Thailand (SET). The questionnaire consists of the indicators with a five- points Likert scale, ranking from 1 (strongly disagree) to 5 (strongly agree), the meaning of scales were shown in Table 3.1. The overall of research design in particular is explained in the following sections.

Table 3.1 The Details of Likert Scale

Scale	Meaning
1	Strongly Disagree
2	Disagree
3	Neither disagree nor agree
4	Agree
5	Strongly Agree

3.3.1 Population and Sample

Population

The population of this study are organizations that are in listing of the Stock Exchange of Thailand (SET), which are under controlled by Securities and Exchange Commission (SEC), the listing of them are shown in Appendix A. The total number of the population is 617 firms. The population are divided into nine groups as the table below;

Table 3.2 The Population's Type and Number of Organizations

No	Population Type	Number
1	Agriculture and Food Industry	43
2	Consumer Products	39
3	Financial	57
4	Industrials	81
5	Property and Constructions	136
6	Resources	32
7	Services	95
8	Technology	39
9	MAI Industry	95
	Total	617

Source of Data: Securities and Exchange Commission (SEC),

April 2014.(www.)

Sample

The sampling technique employs Stratified Random Sampling from nine stratum type of the organizations with proportion in each strata. The researcher uses Yamane' s Pattern (1973) to calculate the sample size, with sampling error 5% and confidence interval at 95%. The sample size is shown below.

$$n = \frac{N}{1+Ne^2} = \frac{617}{1+617(.05)^2} = 242.67=243$$

So, the sample size of this research is 243 organizations. The researcher used SRS (Simple Random Sampling) for sampling from each strata by proportion. According to Kline (2003), he proposed that the Structure Equation Model (SEM) depends and is sensitive on the sample size. Nevertheless, there are many researchers who perform on appropriate sample size to run with SEM. Bentler and Chou (1987) recommends that sample size should be 5 matters per available for normal data. However, Loehlin (1992) indicates that the sample size should be at least 100 cases, but it is preferable at 200 cases. Whereas, the population size is 617, and sample size is 243 organizations. This study uses Structure Equation Model (SEM), which sample size is in SEM condition. For the above reason, the researcher uses the total 243 subjects of the sampling in organizations listing of SEC as the sampling frame.

3.3.2 Instrument

The research framework of this study was developed from the concepts and theories related to the strategic IT alignment, resource-based view in IS discipline, core competencies and organization performance. The strategic IT alignment, IS capabilities in resource-based view, and core competencies affect on the organization performance. The research design of this study was mixed method quantitative approach and qualitative approach. The quantitative approach was operated by using questionnaires and the qualitative approach was done by using recommendation form. The questionnaire has five parts, the first part was asked for demographic information of the participants and overview of the organizations. The second part of questionnaire

consisted of the questions relates to the organizations' strategic IT alignment which was developed from 15 items of the research of Kearns and Lederer (2003). The third part was related to IS capabilities in resource-based view, consisted 12 items of the review of Wade and Hulland (2004). The forth part of questionnaire was related to IT support for core competencies, which adapted from 10 items of survey of Ravichandran and Lertwongsatien (2005). The last part was asked for the organization's performance which adapted from Mithas et al. (2011) that consist of 13 items. The full of questionnaire was shown in Appendix D.

Forasmuch, the second part of questionnaire was related to the organization's strategic IT alignment which was developed from 15 items of the research of Kearns and Lederer (2003) at 0.9080 alpha scales. The list of each item was shown in Appendix C. The strategic IT alignment measures from four variables consisting of Business Plan and Information Technology Plan (BP-ITP plan), Information Technology Plan and Business Plan (ITP-BP plan), Chief Exclusive Officer Participation (CEO participation), and Chief Information Officer Participation (CIO participation), each variable consists three to four items. Thereby**,** the definition of each variable was in Table 1.1.

From above, the first variable of strategic-IT alignment was business plan and IT plan alignment that was composed of four questions. The second was IT plan and business plan alignment that was composed of three questions. The third variable was CEO participation that was consisted four questions and the last variable was CIO participation that was consisted four questions which the alpha scales were 0.9106, 0.9040, 0.9125, and 09048 respectively. All of these questions were developed from the survey of Kearns and Lederer (2003).

Since, the third part of questionnaire was related to IS capabilities which consisted three dimensions including inside-out capabilities, outside-in capabilities, and spanning capabilities from Day (1994) and increasing reviewed by Wade and Hulland (2004) at 0.9052 alpha scales. The list of each item was shown in Appendix C and the alpha scales of them are shown in Appendix F.1

From above, the IS Capabilities were consisted of three dimensions from resource-based view including inside-out capabilities, outside-in capabilities, and

spanning capabilities from Day (1994). Each dimension was composed of four questions which were developed from the review of Wade and Hulland (2004). The alpha scales of three dimensions were 0.9028, 0.9073, and 0.9055 respectively. The list of items of each dimension is shown in Appendix C, and the alpha scales are shown in Appendix F.1.

The forth part of questionnaire was related to the capabilities of usage IT support for core competencies of organizations in three dimensions including IT support for market-access competencies, IT support for integrity-related competencies , and, IT support for functionalities-related competencies. This part of research was developed from 10 items of survey of Ravichandran and Lertwongsatien (2005) which the alpha scale was 0.8997.

Each dimension composed of three or four items which were applied from Ravichandran and Lertwongsatien (2005) which the alpha scales were 0.9108, 0.8971, and 0.8912 respectively. The list of each item is shown in Appendix C and the alpha scales are shown in Appendix F.1.

The last part of questionnaire was asked for the organization performance which was the result of this study measured in four perspectives comprising customer perspective, financial perspective, human resource perspective, and organizational effective perspective. This measurement was developed from the study of Mithas et al.'s (2011) which alike the balanced scorecard of Kaplan and Norton (1992). The customer perspective, the financial perspective, and the human resource perspective were composed of three questions, but the organizational effective perspective was composed of four questions which the alpha scales were 0.9159, 0.900, 0.9028, and 0.9004 respectively. The full of questions are shown in Appendix D, and the full alpha scales are shown in Appendix F.1.

For this study, 5-point Likert scales were used for measurement the second part to the fifth part of questionnaire. Respecting all part and the details of questionnaire, there were some changes of the items to be different from the original questionnaire. Moreover, the questionnaire was translated into Thai language, so all part of questionnaire were test the content validity by the professional in business strategy, information system, and information technology area for directly and correctly

measurement. The details of source questions is shown in Appendix C, and the full questionnaire is shown in Appendix D. Finally, the reliability was tested by using area pilot study.

3.4 Validity and Reliability Analysis

This part aims to explain the meaning and importance of the validity, reliability and how to explore the validity and reliability of the study.

3.4.1 Instrument Validity Analysis

To explore the validity and reliability of conceptual of the study, there are two types including instrument and model. This section is presented the instrument validity and instrument reliability. For the model validity and model reliability are shown in chapter four.

Validity is the best important for creating measurement, because the measurement must be response the objective of research and can measure the conceptual of the study. Dilanthi et al. (2002) said that the validity is a good measure reflects accurately that the researcher is using method which measure the idea or construct of question. There are many type of instrument validity; albeit, this study tested only two types of validity that are content and construct validity.

1. Content Validity

Content validity is the degree of instrument which fully assesses or measures the construct of the attention of the study measure (Cooper and Schindler, 2003). The content validity of this study was tested by using the item-objective congruence (IOC) (Rovinelli and Hambleton, 1977). The IOC was tested by three experts who are professional in business strategy, information system, and information technology area. The experts reviewed all of the items to clarify, comprehend, and indicate comments for each item by giving each item a rating as follow

+1 Refer to the item is clearly measuring the objective of the research question or definition.

0 Mean not sure or unclear what the item is consistent with the purpose of research question or definition.

-1 Mean the item is inconsistent clearly not measuring the purpose of research question or definition.

The IOC score of each item was calculate by total rating score from the experts divided by total number of experts as follow

$$IOC = \frac{\sum R}{N}$$

IOC = Index of Item Objective Congruence

R = Rate of expert Opinion

N = Number of experts

Interpretation are as

IOC $\geq$ 0.5 Mean the objective question indicate the purpose of the research

IOC $<$ 0.5 Mean the objective question does not indicate the purpose of the research

For evaluating the consistency between the objective of the research question to the measurement the research assistant from the professional experts as follow

1. Dr. Worapong Leewattanakit. Lecturer of Faculty of Commerce and Accountancy Chulalongkorn University, Associate President of the Young Executive MBA, Chulalongkorn Business School Chulalongkorn University, Ph. D (Computer Science), Vienna University of Technology.

2. Dr. Meta Suteeraroj. Vice Director of Academic Development and Student Affair of Rajamangala University of Technology Isan, Ph.D. Business Administration (Management).

3. Dr. Pharkpoom Meegoen. Lecturer of Faculty of Business Administration, Rajamangala University of Technology Isan, Ph.D. (Information Studies).

The result after the experts checked a quality in the content validity cover in the questionnaire form, the content validity range from 0.67 up to 1. It shows that the items in questionnaire are consistent between objective of research question, a context accuracy, language appropriate and clarification which cover the study. The research was conducted with the revised question based on advisor suggestion to clearer, changed informal to the official language, and take out unnecessary question. The assessment of IOC score from the experts was shown in Appendix E.

2. Construct Validity

Cooper and Schindler (2003) defined that construct validity is the degree of measurement which an instrument can measures the trait or theoretical construct that is attempted to measure. For this study the construct validity was tested by using Confirmatory Factor Analysis (CFA). The CFA required an appropriated verification and an accuracy of the elements of strategic-IT alignment, IS capabilities, IT support for core competencies, and the organization performance. The process of instrument validity of the study is shown in chapter four.

3.4.2 Reliability Analysis

The Reliability is defined as the boundary to which a questionnaire, test, observation or any measurement procedure produces the same results on repeated trials (Cooper & Schindler, 2003). The internal consistency reliability is related to the scope that the items on the test or the instrument are measured for the same thing. If the individual items are highly correlated with each other, it could be confident that the instrument is high reliability of the entire scale. The instrument of this study consists of the indicators which measure the level of Strategic IT Alignment, IS capabilities, IT support for competencies and organization performances. It is a five- points Likert scale rating, ranking from 1 (strongly disagree) to 5 (strongly agree). Hence, the coefficient alpha (Cronbach, 1951) was applied. Ho (2006) additionally proposed that the value of Cronbach's alpha should be above 0.80, then it would be generally accepted. The value of coefficient Cronbach's alpha of the instrument were presented in chapter four.

3.5 Data Collection

3.5.1 Questionnaire Translation

The instruments of this study are developed from the previous studies. The instruments are asserted with high scale of reliability and validity. However, this study is in Thai context, and the national and official language of Thailand is the Thai language. So it may be different from the original instrument. Therefore, the instruments need to be translated into Thai version. In order to avoid the difference of cultural effect and ensure that the translated instruments in Thai version still retain the

validities, reliabilities, and same meaning of the original instruments, Brislin (1986) translation model with 3 steps is used.

The first step is a forward translation that is translated from the original version from English to Thai. Subsequently, Thai version is reviewed by 2 Thai reviewers to modify some grammars or ambiguous wordings. The last step is to translate backward from Thai to English by someone who can communicate with both the Thai and English language and well understand the instruments. For this study, the instruments are backward translated by a university professor and chief information officer. The recommendation form that confirmed the questionnaire of this study was translated correctly both from English to Thai, and from Thai to English by the department of Art which is shown in Appendix F. Eventually, the complete instruments are tested for the pilot study.

3.5.2 Pilot Study

A Pilot Study is a pre-study that uses a small experimental design. The researcher collected data from a small group for testing and improving the qualities and efficiency of the instrument. The purpose of the pilot study for this research were developed and tested adequacy of the research instruments, assess the feasibility of this study, estimated the variability of outcome and assessed that this study proposed theoretical model is realistic and usable.

This pilot study was based on 30 organizations from the name list of the Stock Exchange of Thailand (SET), that selected from the total sample size. According to the result of the pilot study, the instrument was appropriate adapted before using with the sample group. The researcher collected data by mailing the close-ended questionnaires to CIO of each organization. The random sampling is done from the name list of the Stock Exchange of Thailand (SET) is shown in Appendix A.

3.5.3 Main Study

The main Study was conducted by two methods. The first method was formal by contacted accompanying with the letter authorized by the Rajamangala University of Technology Thanyaburi (RMUTT) to describe the objective, importance, and the benefits of the study. The survey questionnaires were sent by via mail to the chief of information officer (CIO) of the organizations that are in the name list of the Stock

Exchange of Thailand (SET). The second method was content analysis method by using the recommendation form. The recommendation form use to ask the CIO about information strategy, business strategy, and usage of information technology and information system. After the questionnaires were returned, the results were analyzed by using CFA (Confirm Factor Analysis) and SEM (Structure Equation Model).

3.6 Data Analysis

The data analysis begins by rechecking for completion of the questionnaires collected from the subjects. The purpose is to summarize the content. The result can be described from the research questions. Moreover, the final recheck number of usable questionnaires is done from missing or uncompleted sets of data. Finally, the data from completed questionnaires are analyzed. The answer of the questionnaires from sampling group were analyzed by using the descriptive statistics, the factor analysis, and the structural equation model (SEM) by using IBM SPSS version 20 and PLS-Graph 3.0 (Partial Least Square).

3.6.1 Descriptive Statistics

Descriptive statistics are some kinds of quantitative statistics. Researchers use them to describe the main features of data collection. The aim is to summarize a data set that represent the population such as frequency, mean, variance, and standard deviation. For example, it includes the average of organization's age, amount of IT employees, total of employees, and percentage of budget for IT, the proportion of each gender, position and type of organization.

3.6.2 Factor Analysis

Factor analysis is a technique which aims to reduce the set of measured variables to a smaller set of basic factors (Spicer, 2005). Similarly, the factor analysis is the technique to categorize the set of variables that have relationships. The purpose is to reduce several variables in a new group or factor (Vanichbuncha, 2013). Factor analysis helps to oppose problem of multi collinearity. The factor analysis composes of two types; exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA is used when the researcher is not certain nor confident about the number of factors which are appropriate to explain the interrelationships among a set of variables.

Whereas CFA is used when the researchers have some knowledge and confidence on the number of factors which are appropriate to explain the interrelationships among a set of variables. According to the instrument, it was translated into the Thai language, and the data were collected from the organizations in Thailand where the different context may affect the structure of each factor. Thus, EFA was employed for in this study. After that, CFA was used to confirm the structure of the factors again. In this study, the factor analysis was also used to test the structure of the factors of four constructs; Strategic IT alignment, IS capabilities, IT support for core competencies, and organization performance.

3.6.3 Structure Equation Model (SEM)

SEM is a statistical technique for testing and estimating causal relations. SEM uses a combination of statistical data and qualitative causal assumptions (Wright, 1921). Another definition is that SEM is a statistical method that takes a confirmatory approach for hypothesis testing to the analysis of a structural theory bearing on some phenomenon (Bruce, 1997). SEM consists of two aspects of procedure. The first procedure is a measurement model that latent variables are proposed and tested through factor analysis. The second one is the structural model that has relationships between latent and latent variables. In another word, the relationships between latent and observed variables are tested through regression which is causal and rational way. This study, the relationships between items and factors of strategic IT alignment, IS capabilities, and IT support for core competencies are tested by regression. In addition, the relationship among strategic IT alignment, IS capability, and IT support for core competencies are tested by regression.

3.6.4 Analysis of Non-Response Bias

The profile of respondents was ascertained by comparing in terms of size and type of the organizations. The chi-square analysis revealed no systematic response bias. Chi-square test comparing early and late respondents on organizations type and organizations size also asserted no significant response bias.

Timetable

This study is planed to study for twenty months, from October 2013 to August 2015. The first stage is defined research question, review literature and methodology

for six months. The second stage is collected data by mailing questionnaire for eight months. The third stage is analyzed the data and interpreted the results, the time duration is four months. The last stage is presentation the dissertation and published in the journal.

3.7 Chapter Summary

In conclusion, chapter three explains the research methodology consisting the model/theoretical framework, research hypothesis, research instruments, population and sample, reliability analysis, validity analysis, data collection, data analysis, and time table. The next chapter will present the results of the study.

CHAPTER 4
RESEARCH RESULTS

This chapter described research results. Section 4.1 explores data preparation and section 4.2 leads to pilot study and main study. In section 4.3 and 4.4, refining and reliability analysis and construct assessment and validity analysis are presented. Section 4.5 describes Partial Least Square. Demographic summary, result of constructs, model validity, hypothesis testing results are described in section 4.6, 4.7, 4.8 and 4.9, respectively. Results of the recommendation form that were collected from CIO are presented and the summary of chapter four is included.

4.1 Data Preparation

There are two steps of data preparation that need to do before the analysis processes as following.

4.1.1 The Population and Sample Rate

The target population of this study were the organizations that were in listing of the Stock Exchange of Thailand (SET), which were under controlled by Securities and Exchange Commission SEC). These organizations were separated into nine types for instance, agriculture and food industry, consumer products, financial, industrials, property and constructions, resources, services, technology, and MAI industry, the total of population was 617 firms (SEC, April 2014).

The samples were used the stratified random sampling technique from nine statum type of organizations, and used simple random sampling from each strata by proportion. The sample size calculated from Yamane's formula (1973) with sampling error 5%, the number of sample size was 243 organizations. The actual samples were 243 respondents that there were 30 respondents for pilot study, and 243 respondents in the main study. The researcher sent 243 questionnaires to the CIO of each organization. The researcher used nine months during April 2014 and December 2014 for collecting data, and 175 questionnaires were returned to the researcher with the response rate for 72.02 percent.

The returned questionnaires were 21.14 percent from industrials, 12.00 percent from services, 10.86 percent from property and constructions, 10.29 percent from agriculture and food industry, 9.71 percent from recourses, and technology, 9.14 percent from consumer productions, and financial, and 8.00 percent from MAI industry.

After data analysis and testing model of this study, found that results of 14 questionnaires from MAI were responsive and cause the model testing. Foreasmuch, the IT department of MAI were small and have a few staff, so the response of some questions were low value. So, this study eliminated 14 MAI questionnaires before the statistical analysis.

4.1.2 Normal Distribution of Sample

Before performing the statistical analysis, the normal distribution of sample or data from responses should be tested. Normal distribution was assessed by two indicators value of skewness and kurtosis. The normal distribution have zero skewness, and zero kurtosis (Pearson, 1895), he first suggested measuring skewness by standardizing the difference between mean and mode. The skewness scores from the sample were between -1 and +1 (Hildebrand, 1986). West and Finch(1997) proposed that the value of skewness index should be between -3 and +3 is approximated the normal distribution. Decarlo (1997) suggested that the kurtosis scores were between -3 and +3 can be assumed normal distribution. Besides Karl (2005) proposed that the skewness score and kurtosis score from the large sample sized ($n > 150$) were approximately normal distribution. Furthermore, Rose et al.(2015) expressed that we can assessed normal distribution by using the standard error of both skewness and kurtosis from specialist statistics package such as SPSS report. Applying the rule of dividing each value by its standard error, give 0.76 for skewness and 0.68 for kurtosis, both well with in ± 1.96 limits, and for the large samples can used ± 2.58, it confirmed that the samples were normal distribution (Rose et al., 2015).

The results indicated that the value of skewness ranging from -0 .421 to 0.549 with standard error of skewness was 0.184, and the value of kurtosis ranging from -0.337 to 0.802 with standard error of kurtosis was 0.365 (presented in Appendix G.1). Therefore, it could be concluded that all of data in this study were approximated normal

distribution by using histogram with normality curve. All of normality curve were presented in Appendix G.2, the sample of normality curve is shown below.

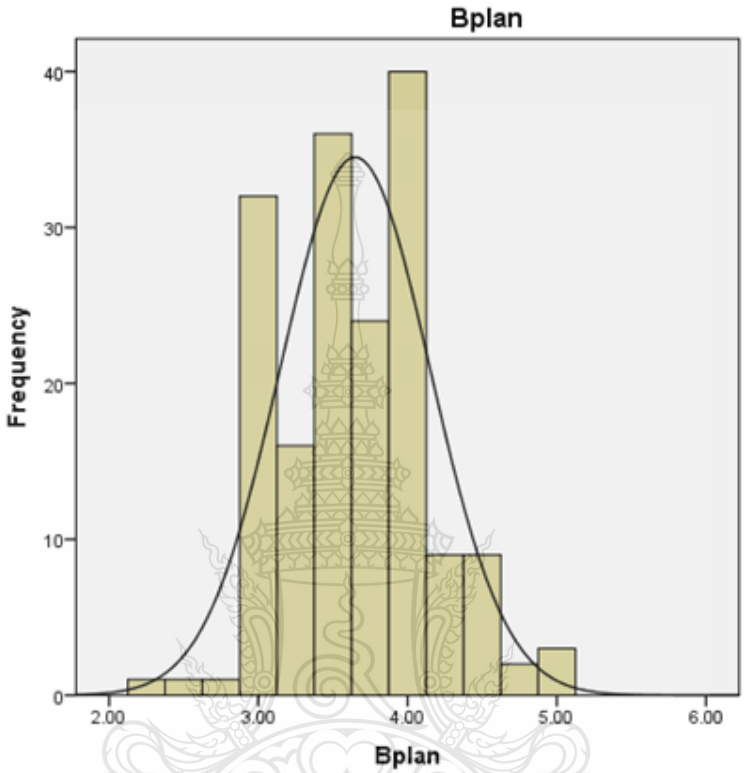


Figure 4.1 The normality curve of Bplan

4.2 Pilot Study and Main Study

Pilot Study was done by selecting 30 organizations from the total population for adjustment to define all items clearly. All items were assessed by using Cronbach's alpha for strategic-IT alignment, IS capabilities, IT support for core competencies, and organization performance. The Cronbach's alpha should be more than 0.80 (Ho, 2006). If the Cronbach's alpha of any item less than 0.80 these items would be deleted. The contents of this process presents in next title.

The results from the pilot study showed that all instruments had both reliability and validity, which mean the main study was proposed theoretical model is feasible and workable, so the main study was conducted.

4.3 Refining and Reliability Analysis

After the pilot study was done, the items of strategic-IT alignment, IS capabilities, IT support for core competencies, and organization performance were checked by Cronbach's Alpha for confirmed that these items could measured the variables. Ho (2006) suggested that the values of Cronbach's alpha should be more than 0.80 was accepted for the study. The Cronbach's alpha for strategic-IT alignment, IS capabilities, IT support for core competencies, and organization performance were 0.908, 0.905, 0.900, and 0.905 respectively that means the construct validity were supported. The list of all items of four constructs were shown in Appendix F.2.

4.4 Construct Assessment and Validity Analysis

With regard to the instrument, it was translated from source English document into Thai language, the data were collected from Thai organizations while the different context may affect the structure of each factor which was uncertain that these translated scales exact contained the same factor structure as the original version. This part is instrument validity was explained in the chapter three. This EFA was used to test and explain the overall information of the variables.

The construct assessment of the study has 2 steps. The first step uses factor analysis by EFA (Exploratory Factor Analysis) to explores the number of factors and interrelationship among a set of variable which indicate each factor from theory (Manly, 2005). The second step uses CFA (Confirmatory Factor Analysis) to confirm the structure of these factor from original factor.

The statistic of EFA are KMO and χ^2 from Bartlett's test of Sphericity. KMO is a statistic which indicates that there are sufficient items for each factor. The value of KMO are between 0 and 1, if KMO value is nearly 1, it means the factor analysis technique is appropriated with these data (Manly, 2005). Manly (2005) suggests that KMO value should be over 0.7. Bartlett's test is statistic for checking the original variables are sufficiently correlated by using χ^2 and p-value. If χ^2 value is high then the p-value is less than 0.05, they show that the test come out significant which means the factor analysis can arrange these data in the original variable (Manly, 2005).

4.4.1 The structure of Strategic-IT Alignment

In the first stage, the results of the Kaiser-Meyer-Olkin (KMO) test was 0.785 which was over 0.7, while the results of the Bartlett's test of Sphericity was the $\chi^2 = 838.336$ and p-value = 0.000. The p-value was less than 0.05 with χ^2 value was high.

Both results indicated that these variables had relationship and were acceptable to conduct the Factor Analysis. The results of this stage was presented in Appendix H.1 and Appendix H.2. The four factors were accounted for cumulative of variation in data at 62.052 percent that presented in Appendix H.1. From the rotated factor, it could be seen that items BP1-BP4 loaded on factor was labeled "business plan" dimension (BPLAN). The second factor consisted items IT1-IT3 which was labeled "ICT plan" dimension (ITPLAN). The third factor comprised items CEO1-CEO4 which was labeled "CEO participates" dimension (CEO). The last factor was labeled "CIO participates" dimension (CIO) which included items CIO1-CIO4.

Table 4.1 Total Variance Explained for Strategic-IT Alignment After Dropped Items

Component	**Initial Eigen Values**			**Extraction sums of squared loading**			**Rotation Sums of squared loading**
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**	**Total**
CIO	4.519	32.282	32.282	4.519	32.282	32.282	2.703
ITplan	1.889	13.493	45.775	1.889	13.493	45.775	2.264
Bplan	1.358	9.699	55.474	1.358	9.699	55.474	2.021
CEO	1.214	8.668	64.142	1.214	8.668	64.142	1.991

*Extraction Method: Principle Component Analysis.

In Appendix H.2, it presented the factor score from rotated component matrix, the results found that the variables of this study were concordance from the source variables. Most of the factor scores were loaded in the same factor were more than 0.5 but there is only CEO2 (CEO becomes knowledgeable about competitor' use of IS and IS opportunities within the firm) which factor score was less than 0.5, thus the next process would dropped this item for arranged the set of variables which were

corresponded the source variables. The results of the Kaiser-Meyer-Olkin (KMO) test was 0.777, while the results of the Bartlett's test of Sphericity was the $\chi^2 = 774.384$ and p-value = 0.000. Both results indicated that these variables had relationship and were acceptable to conduct the Factor Analysis.

Table 4.2 Rotated Component Matrix of Strategic-IT Alignment After Dropped Items

Item	Business Plan	IT Plan	CEO Participates	CIO Participates
1. The Business Plan refers to the IS Plan.	**0.756**	-0.016	0.271	0.124
2. The Business Plan refers to specific IS applications and information technologies.	**0.846**	0.017	0.034	-0.031
3. The Business Plan utilizes the strategic capability of IS.	**0.578**	0.511	-0.182	0.201
4. The Business Plan contains reasonable expectations of IS.	**0.564**	0.517	-0.170	0.241
5. The IS Plan reflects the business plan, mission, and goals.	0.056	**0.745**	0.138	0.205
6. The IS Plan supports the business strategies.	-.051	**0.708**	0.401	0.091
7. The IS Plan recognizes external business environment forces.	-0.101	**0.713**	0.142	0.137
8. The CEO plays an important role in the corporate IS steering committee	0.070	0.239	**0.540**	0.337
9. The CEO has frequent informal contacts with IS management.	-0.052	0.098	**0.773**	0.165
10. The CEO regards spending on IS as strategic investments rather than expenses to be controlled.	0.153	0.117	**0.808**	0.111
11. The CIO regularly attends business planning meetings.	0.029	0.133	0.116	**0.805**

Table 4.2 Rotated Component Matrix of Strategic-IT Alignment After Dropped Items (Cont.)

Item	Business Plan	IT Plan	CEO Participates	CIO Participates
12. The CIO contributes to the formulation of business goals.	0.168	0.207	0.018	**0.789**
13. The CIO has regular informal contacts with top management.	0.044	0.140	0.282	**0.631**
14. The CIO has frequent contacts with the CEO.	0.064	0.103	0.196	**0.836**

As referring to the particulars mentioned above, the four factors after dropped one item was accounted for cumulative of variation in data at 63.722 percent that were shown in Table 4.1 and Table 4.2. Thus, the factors in Table 4.2 were used for analyzing with the structural equation model(SEM) with PLS(Partial Least Square). Furthermore, the second stage were confirmed that each factor comprised the set of variables in Table 4.3.

Table 4.3 Statistic of CFA, Reliability and Convergent Validity Assessment for Strategic-IT Alignment

Construct/Item	Loading	t-Stat
Bplan: Alignment of the Business Plan with IT Plan		
BP1: The Business Plan refers to the IS Plan.	0.560	2.575
BP2: The Business Plan refers to specific IS applications and information technologies.	0.665	2.985
BP3: The Business Plan utilizes the strategic capability of IS	0.875	4.398
BP4: The Business Plan contains reasonable expectations of IS.	0.823	4.398
*** AVE (Average Variance Extracted) of Bplan = 0.549**		
*** Composite Reliability of Bplan = 0.826**		
ITplan : Alignment of the IT Plan with Business Plan		
IT1 : The IS Plan reflects the business plan, mission, and goals.	0.794	3.694
IT2 : The IS Plan supports the business strategies.	0.760	2.652
IT3 : The IS Plan recognizes external business environment forces.	0.825	6.469
*** AVE (Average Variance Extracted) of ITplan = 0.627**		
*** Composite Reliability of ITplan = 0.836**		
CEO : The CEO Participates in IT Plan		
CEO1 : The CEO plays an important role in the corporate IS steering committee	0.921	2.130
CEO3 : The CEO has frequent informal contacts with IS management.	0.520	1.971
CEO4 : The CEO regards spending on IS as strategic investments rather than expenses to be controlled.	0.762	2.483
*** AVE (Average Variance Extracted) of CEO = 0.554**		
*** Composite Reliability of CEO = 0.778**		

Table 4.3 Statistic of CFA, Reliability and Convergent Validity Assessment for trategic-IT Alignment (Cont.)

Construct/Item	Loading	t-Stat
CIO : The CIO Participates in Business Plan		
CIO1: The CIO regularly attends business planning meetings.	0.798	5.742
CIO2: The CIO contributes to the formulation of business goals.	0.829	8.777
CIO3: The CIO has regular informal contacts with top management.	0.711	4.550
CIO4: The CIO has frequent contacts with the CEO.	0.867	10.827
*** AVE (Average Variance Extracted) of CIO =**	**0.645**	
*** Composite Reliability of CIO =**	**0.879**	

The loading score of each item should be above 0.5 (Chin, 2001), and significant level of test was 0.05 with t-stat was 1.96. Thus t-stat should be above 1.96 (Piriyakul, 2010). The AVE (Average Variance Extracted) of each variable should be above 0.5 and the composite reliability of all latent should be above 0.7. These are conditions for determination set of items are loaded in the original factor (Chin, 2001).

The Table 4.3 found that all of loading scores of all items were above 0.5 and t-stat were over 1.96. Furthermore the AVE of four latent variables were greater than 0.5, and the composite reliability of all latent were above 0.7. It showed that all items arranged in the original variable therefore, it could be accepted the structure of strategic IT alignment instrument is best represented by four unique dimensions.

4.4.2 The Structure of IS Capability

The first phase, the results of the Kaiser-Meyer-Olkin(KMO) test was 0.907, while the results of the Bartlett's test of Sphericity was the χ^2=1120.818 and p-value = 0.000. Both results showed that these variables had relationship and were acceptable to conduct the factor analysis. The results of this phase were shown in Appendix H.3 and Appendix H.4. The three factors were accounted for cumulative of variation in data at 69.036 percent that presented in Appendix H.3. From the rotated factor, it could be seen that items RES1 - RES4 loaded on factor was labeled "inside-out

capabilities" dimension (INSIDE). The second factor comprised items RES6 - RES8 which was labeled "outside-in capabilities" dimension (OUTSIDE). The last factor was labeled "Spanning Capabilities" dimension (SPANNING) which consisted items RES9 - RES12.

Table 4.4 Total Variance Explained for IS Capabilities After Dropped Items

Component	Initial Eigen Values			Extraction sums of squared loading			Rotation Sums of squared loading
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Spanning	5.811	58.109	58.109	5.811	58.109	58.109	2.724
Outside	0.937	9.368	67.477	0.937	9.368	67.477	2.462
Inside	0.845	8.447	75.924	0.845	8.447	75.924	2.406

* Extraction Method : Principle Component Analysis.

In Appendix H.4 presented that factor score from rotated component matrix, the results found that the variables of this study were concordance from the original variables. Most of variables that have factor score more than 0.5 would provided in the same factor, there was only one variable that factor score was less than 0.5, it was RES1. Therefore, the next process would dropped this item for arranged the set of variables which were corresponded the source variables by repeated factor analysis.

Table 4.5 Rotated Component Matrix of IS Capabilities After Dropped Items

Item	Inside-Out Capabilities	Outside-In Capabilities	Spanning Capabilities
1. The IT/IS staff have good and advance technical IT skills.	**0.791**	0.108	0.353
2. There are capabilities to provide IS development with new technologies in the future.	**0.827**	0.255	0.204
3. There are capabilities to provide efficient and cost-effective IS Operation.	**0.730**	0.400	0.286
4. There are capabilities to work with supplier and outsourcing partners to develop appropriate IS for the firm.	0.126	**0.815**	0.291
5. There are capabilities to work with customers to provide solutions, support, and services.	0.264	**0.837**	0.209
6. There are capabilities to develop and manage IS projects rapidly.	0.320	**0.707**	0.321
7. There are capabilities to integrate IS function with other functional areas of the organizations.	0.278	0.264	**0.788**
8. There are capabilities to align IS function with other functional areas of the organizations.	0.205	0.251	**0.859**
9. There are capabilities to plan and manage IS architectures and standards for the organizations.	0.308	0.268	**0.749**
10. There are capabilities to choose platforms and make change to accommodate future change.	0.402	0.395	**0.570**

As referring to the particulars mentioned above, the factor score after dropped the item were accounted for cumulative of variation in data at 75.924 percent that were shown in Table 4.4. The results of the Kaiser-Meyer-Olkin (KMO) test was 0.893, while the results of the Bartlett's test of Sphericity was the χ^2 = 987.088 and p-value = 0.000. Both results indicated that these variables had relationship and were acceptable to conduct the Factor Analysis.

Therefore, the factors in Table 4.5 were used for analyzing in the structural equation model (SEM) with partial least square(PLS Graph). Moreover, the second stage were confirmed that each factor comprised the set of variables in Table 4.6.

Table 4.6 Statistic of CFA, Reliability and Convergent Validity Assessment for IS Capabilities

Construct/Item	Loading	t-Stat
Inside: Inside-Out Capabilities		
RES2: The IT/IS staff have good and advance technical IT skills.	0.849	17.272
RES3: There are capabilities to provide IS development with new technologies in the future.	0.884	22.352
RES4: There are capabilities to provide efficient and Cost Effective IS Operation.	0.888	15.607
*** AVE (Average Variance Extracted) of Inside =**	**0.763**	
*** Composite Reliability of Inside =**	**0.906**	
Outside : Outside-In Capabilities		
RES5 : There are capabilities to work with supplier and outsourcing partners to develop appropriate IS for the firm.	0.862	16.026
RES6 : There are capabilities to work with customers to provide solutions, support, and services.	0.896	16.594
RES7 : There are capabilities to develop and manage IS projects rapidly.	0.853	13.234
*** AVE (Average Variance Extracted) of Outside =**	**0.758**	
*** Composite Reliability of Outside =**	**0.904**	

Table 4.6 Statistic of CFA , Reliability and Convergent Validity Assessment for IS Capabilities (Cont.)

Construct/Item	Loading	t-Stat
Span: Spanning Capabilities		
RES9: There are capabilities to integrate IS function with other functional areas of the organizations.	0.860	14.249
RES10: There are capabilities to align IS function with other functional areas of the organizations.	0.889	22.010
RES11: There are capabilities to plan and manage IS architectures and standards for the organizations.	0.862	15.702
RES12: There are capabilities to choose platforms and make change to accommodate future change.	0.811	11.587
*** AVE (Average Variance Extracted) of Span =**	**0.732**	
*** Composite Reliability of Span =**	**0.916**	

In Table 4.6 showed that all of loading scores of all items were above 0.8 which were over 0.5 (Chin, 2001). Furthermore the AVE of three latent variables were greater than 0.5, and the composite reliability of all latent were above 0.7. Inasmuch, it showed that all items arranged in the original variable therefore, it could be accepted the structure of IS Capabilities instrument is best represented by three unique dimensions.

4.4.3 The Structure of IT Support for Core Competencies

The process begins by considering the results of the Kaiser-Meyer-Olkin (KMO) test was 0.875 while the results of the Bartlett's test of Sphericety was the $\chi^2 = 601.006$ and p-value = .000. Both results illustrated that the variables had relationship and were acceptable to conduct the factor analysis. The results of this process were shown in Appendix H.5 and Appendix H.6. The three factors were accounted for cumulative of variation in data at 66.106 percent (see in Appendix H.5). From the rotated factor, it could be seen that items COMP7-COMP10 loaded on factor was labeled "IT support for functionalities-related competencies" dimension (FUNCT). The second factor consisted items COMP4-COMP6 which was labeled "IT support for

integrity-related competencies" dimension (INTEGRITY). The last factor was labeled "IT support for marled-access competencies" dimension(market) which consisted COMP1 - COMP3.

Table 4.7 Total Variance Explained for IT Support for Core Competencies After Dropped Items

Component	Initial Eigen Values			Extraction sums of squared loading			Rotation Sums of squared loading
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Function	3.853	48.167	48.167	3.853	48.167	48.167	2.180
Market	1.060	13.251	61.418	1.060	13.251	61.418	1.828
Integrity	0.800	10.004	71.422	0.800	10.004	71.422	1.706

* Extraction Method : Principle Component Analysis.

The Appendix H.6 displayed the factor score from rotated component matrix which found that the variables of this study were consonance from the original variables. Most of variables that have factor score more than 0.5 would provided in the same factor as same as the original factor, but two factor loadings did not arrange in the original factor, they were COMP1 and COMP4. The factor loading of COMP1 and COMP4 were less than 0.5. Therefore, the next process would dropped two items and repeated factor analysis.

Table 4.8 Rotated Component Matrix of IT Support for Core Competencies After Dropped Items

Item	Market-access Competencies	Integrity-related Competencies	Functionlity-related Competencies
1. Determining customers requirements (e.g., products, preference, pricing, and quantity).	**0.871**	0.164	0.140
2. Tailoring the products/services to match customers' needs.	**0.798**	0.215	0.315
3. Integrating internal business units.	0.199	**0.838**	0.097
4. Using IT for increasing the speed of activities.	0.165	**0.745**	0.256
5. Developing new products/services.	0.457	0.037	**0.687**
6. Improving the speed of product development.	0.380	0.140	**0.753**
7. Increasing the speed of responding to business opportunities/threats.	-0.001	0.527	**0.628**
8. Identifying new market segments	0.112	0.276	**0.743**

According particulars mentioned above , the factor score after dropped the item found that the Kaiser-Meyer-Olkin(KMO) test was 0.847 while the results of the Bartlett's test of Sphericety was the $\chi^2 = 448.292$ and p-value = .000. The results found that three factors were accounted for cumulative of variation in data at 71.422 percent which presented in Table 4.7. Consequently, the factor were in Table 4.8 were used for analyzing in the structural equation model (SEM) with partial least square (PLS Graph). In addition, the second stage were confirmed the factors by using CFA with PLS Graph V3.0 (see in Table 4.9).

Table 4.9 Statistic of CFA, Reliability and Convergent Validity Assessment for IT Support for Core Competencies

Construct/Item	Loading	t-Stat
IT support for market-access competency		
COMP2: Determining customers requirements (e.g., products, preference, pricing, and quantity).	0.899	41.709
COMP3: Tailoring the products/services to match customers' needs.	0.899	41.709
*** AVE (Average Variance Extracted) of Market =**	**0.808**	
*** Composite Reliability of Market =**	**0.894**	
IT support for integrity-related competency		
COMP5: Integrating internal business units.	0.860	22.811
COMP6: Using IT for increasing the speed of activities.	0.860	22.811
*** AVE (Average Variance Extracted) of Integrity =**	**0.740**	
*** Composite Reliability of Integrity =**	**0.851**	
IT support for functionality-related competency		
COMP7: Developing new products/services.	0.781	9.250
COMP8: Improving the speed of product development.	0.860	18.115
COMP9: Increasing the speed of responding to business opportunities/threats.	0.712	6.595
COMP10: Identifying new market segments	0.744	8.065
*** AVE (Average Variance Extracted) of Function**	**0.603**	
*** Composite Reliability of Function =**	**0.858**	

In Table 4.9 showed that all of loading scores of all items were above 0.5 and t-stat were over 1.96(Chin, 2001; Piriyahul, 2010). The AVE of three latent variables were greater than 0.5, and the composite reliability of all latent were above 0.7. Inasmuch, it could be asserted that the structure of IT Support for Core Competencies instrument of the study is reliable for the measurement of IT Support for Core Competencies.

4.4.4 The Structure of Organization Performance

As the section 4.4.1, 4.4.2, and 4.4.3, the first stage considers the result of the Kaiser-Meyer-Olkin (KMO) test was 0.862 while the results of the Bartlett's test of Sphericity was the $\chi^2 = 1141.309$ and p-value = .000. Both results indicated that the variables had relationship and were acceptable to conduct the factor analysis. The results of this phase can be found in Appendix H.7 and Appendix H.8. The four factors were accounted for cumulative of variation in data at 74.673 (see in Appendix H.7). From the rotated factor, it could be seen that items PERF1- PERF3 loaded on factor was labeled "Financial Performance" perspective (FINANCIAL). The second factor comprised items PERF4 - PERF6 loaded on factor was labeled "Customer Performance" perspective (CUSTOMER). The third factor included PERF7 - PERF9 load on factor was labeled "Human Resource Performance" perspective (HUMAN). The last factor consisted items PERF11 - PERF13 loaded on factor was labeled "Organization Effectiveness Performance" perspective (ORGANIZE).

Table 4.10 Total Variance Explained for Organization Performance After Dropped Items

Component	Initial Eigen Values			Extraction sums of squared loading			Rotation Sums of squared loading
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Financial	5.381	44.845	44.845	5.381	44.845	44.845	2.508
Organize	1.522	12.683	57.527	1.522	12.683	57.527	2.280
Customer	1.249	10.409	67.936	1.249	10.409	67.936	2.139
Human	0.993	8.279	76.215	0.993	8.279	76.215	2.132

* Extraction Method : Principle Component Analysis.

In Appendix H.7, it presented the factor score from rotated component matrix which found that most of variables had factor score more than 0.5 and loaded in the original factors, there was only PERF10 which could not loaded in original factors with factor loading was less than 0.5. Hereby, the next process would dropped item PERF10 and repeated factor analysis again.

Table 4.11 Rotated Component Matrix of Organization Performance After Dropped Items

Item	Financial	Customer	Human Resource	Organization Effectiveness
1. Our profit is increasing when compared with previous year.	**0.858**	0.249	0.060	0.130
2. Our Return Of Asset(ROA) is more than previous year.	**0.911**	0.151	0.145	0.113
3. Our market share has exceeded that of our competitors.	**0.730**	0.209	0.157	0.182
4. Our customers remain satisfaction in our products and services.	0.329	**0.721**	0.182	0.293
5. We always build good relationship with our customers.	0.283	**0.805**	0.223	0.150
6. Our customers retention has exceeded that of our competitors.	0.139	**0.774**	0.149	0.230
7. The employees satisfy in their work.	0.303	0.025	**0.748**	0.252
8. We have clearly work layout for guidelines to employees behave in working.	0.178	0.173	**0.837**	0.208
9. We encourage our employees to develop their knowledge and Skills.	-0.061	0.362	**0.810**	0.056
10. We design productivity exceeded that of our competitors	0.124	0.258	0.183	**0.807**
11. We have brought new products and services to the market faster than of our competitors.	0.230	0.242	0.122	**0.821**
12. Our Information Management have effected to support our business processes more than of our competitors	0.087	0.103	0.162	**0.787**

Quoting to the factor score after dropped the item were shown in table 4.10 and Table 4.11, the results found that the Kaiser-Meyer-Olkin(KMO) test was 0.843 while the results of the Bartlett's test of Sphericety was the $\chi^2 = 1028.342$ and p-value = .000. The results showed that four factors were accounted for cumulative of variation in data at 76.215 percent which presented in Table 4.11. Hence, the factors were in Table 4.11 were used for analyzing in the structural equation model (SEM) with partial least square (PLS Graph). Furthermore, the second phase were confirmed the factors by using CFA with PLS Graph V.3.0 (see in Table 4.12).

Table 4.12 Statistic of CFA, Reliability and Convergent Validity Assessment for Organization Performance

Construct/Item	Loading	t-Stat
Financial Performance		
PERF1: Our profit is increasing when compared with previous year.	0.891	8.817
PERF2: Our return of asset(ROA) is more than previous year.	0.926	14.751
PERF3: Our market share has exceeded that of our competitors.	0.832	5.279
*** AVE (Average Variance Extracted) of Finance =**	**0.781**	
*** Composite Reliability of Finance =**	**0.914**	
Customer Performance		
PERF4 : Our customers remain satisfaction in our products and services.	0.898	13.590
PERF5 : We always build good relationship with our customers.	0.882	8.299
PERF6 : Our customers retention has exceeded that of our competitors.	0.807	5.037
*** AVE (Average Variance Extracted) of Customer =**	**0.745**	
*** Composite Reliability of Customer =**	**0.897**	

Table 4.12 Statistic of CFA, Reliability and Convergent Validity Assessment for Organization Performance (Cont.)

Human Resource Performance		
PERF7: The employees satisfy in their work.	0.821	6.615
PERF8: We have clearly work layout for guidelines to employees behave in working.	0.893	7.590
PERF9: We encourage our employees to develop their knowledge and Skills.	0.847	7.839
*** AVE (Average Variance Extracted) of Human =**	**0.730**	
*** Composite Reliability of Human =**	**0.890**	
Organization Effectiveness Performance		
PERF11: We design productivity exceeded that of our competitors	0.851	10.062
PERF12: We have brought new products and services to the market faster than of our competitors.	0.871	13.013
PERF13: Our Information Management have effective to support our business processes more than of our competitors.	0.847	16.010
*** AVE (Average Variance Extracted) of Organize =**	**0.734**	
*** Composite Reliability of Organize =**	**0.892**	

Finally, the structure of organization performance needs to be considered. The results of CFA with PLS showed that all of loading value were greater 0.7 and t-stat value were high. The AVE of four latent variables were above 0.5, and the composite reliability of them were above 0.7. Therefore, it could be confirmed that the structure of organization performance of the study is best represented by four unique dimensions.

4.5 Partial Least Square (PLS)

PLS is widely used for testing the research model in many discipline. The researches always use many factors or complex variables such as marketing research, social research etc. Thus, the data analysis employs advance statistics such as multiple regression analysis (MRA), factor analysis, discriminant analysis, logistic regression etc. These techniques are first-generation technique which belong to the core set of statistical instruments that able to identify and confirm theoretical hypothesis base on analysis one simple model for each time (Haenlein & Kaplan, 2004 ; Piriyakul, 2010). The limitation of these techniques are 1) the postulation of a simple model structure which one dependent and several independent variables, 2) all variables are determined as observation (McIntosh & Lobaugh, 2004; Haenlein & Kaplan, 2004), and the estimate all variables are measured without error.

The researches in many disciplines require to study the model which are more complex and more realistic situations. For example, there are many dependent variables desire to investigate the effect of mediating or moderating variable on the relationship between one or many dependent and independent variables (Hair et al., 2010; Haenlein & Kaplan, 2004).

Afterwards, Joreskog developed new technique by using covariance namely structure equation model (SEM) in 1973. SEM is second-generation model which able to analyze the relationship between variables in multi levels both inner structure model and outer structure model at the same time (Haenlein & Kaplan, 2004; Piriyakul, 2010). SEM has 2 types, the first type is Covariance-Based SEM(CBSEM) which analyze by maximize similarity covariance structure. The example of Covariance-Based SEM are LISREL, AMOS, EOS, and SEPATH (Chin, 1998b; Haenlein & Kaplan, 2004). The second type is Variance-Based SEM (VBSEM) which analyzed by using ordinary least square method(OLS). The statistical software for VBSEM is PLS (Chin, 2001; Haenlein & Kaplan, 2004).

Partial Least Square (PLS) is a modern statistical technique which developed by Wold in 1966 (Haenlein & Kaplan, 2004; Abdi, 2007). PLS combines features and ability from principle component analysis (PCA) of factor analysis and multiple regression (Abdi, 2007; Piriyakul, 2010). The goal of PLS is analysis, discrimination

and prediction the set of dependent variables from a very large set of independent variables (Haenlein & Kaplan, 2004; Abdi, 2007). PLS initialed in the social science (Wold, 1966) and become popular first in chemometries (Wold, 2001; Abdi, 2007). Now PLS is becoming as a tool of choice in the social science (Mc Intosh & Lobaugh, 2004). Consequently, PLS is flexible and has advantage that it involves no limitation about the assumption of the population as scales of measurement (Fornell & Bookstein, 1982; Haenlein & Kaplan, 2004) and it works without normality distribution (Haenlein & Kaplan, 2004; Piriyakul, 2010). Moreover PLS-SEM can work particularly well with small sample sizes (Hair et al., 2011), the appropriate sample size should not be less than tenfold of the number of indicators of latent variables or 100-200 observations (Chin, 2001; Hair et al., 2010).

The model in this study has 4 latent variables and 14 variables , so tenfold of 14 was 140 cases. This study use 161 cases to analyzed descriptive statistics and testing model with PLS.

4.6 Demographic Summary

The respondent and organization's demographic information comprise gender, position, type of the organization, level of CIO in administration line from top management, number of years in operation number of staff, number of staff in IT/IS department and proportion of IT budget by descriptive statistics. The details of suffered information were shown as below.

Table 4.13 Summary of Respondent's Demographics

Characteristics	Frequency	Percent
Total	**161**	**100.00**
Gender		
Male	125	77.64
Female	36	22.36
Position		
President / Vice President	4	2.48
Director / Associate Director	43	26.71
Manager / Associate Manager	100	62.11
Other	14	8.70
Level of Chief Information Officer (CIO) in Administration line from top management		
First Level from Top	6	3.73
Second Level from Top	55	34.16
Third Level from Top	86	53.41
Forth Level from Top	14	8.70

The data were collected from the organizations which are in the listing of the Stock Exchange of Thailand (SET) by two random sampling methods , that were stratified random sampling and simple random sampling whereas data collection was made from April 2014 to December 2014. The respondents were chief of information officer (CIO) of the organizations, the characteristics of the majority of respondents were summarized as follow.

The majority of the respondents were male which were accounted for 77.64 percent and female were accounted for 22.36 percent. Most of them were manager or associate manager accounted for 62.11 percent, director or associate director which were sub ordinary accounted for 26.71 percent and president or vice president were fewest accounted for 2.48 percent. The majority of CIO were in the third level of administration line from top management were accounted for 53.41 percent, the second level of administration line which were sub ordinary accounted for 34.16 percent and the first level which were fewest accounted for 3.73 percent. The demographics information of organizations were as below.

Table 4.14 Summary of Demographics of Organization

Characteristics	Frequency	Percent
Total	161	100.00
Type of the organization		
Agriculture and Food Industry	18	11.18
Consumer Productions	16	9.94
Financial	16	9.94
Industrials	37	22.98
Property and Constructions	19	11.80
Resources	17	10.56
Services	21	13.04
Technology	17	10.56
Number of year in operation		
1 – 20 Years	44	27.33
21 – 30 Years	46	28.57
31 – 40 Years	42	26.09
More than 40 Years	29	18.01
Number of staffs		
Less than 500 persons	62	38.52
500 – 1,000 persons	48	29.81
1001 – 2,000 persons	29	18.01
2001 – 3,000 persons	10	6.21
More than 3,000 persons	12	7.45
Number of Information Technology staffs		
1 – 20 persons	44	27.33
21 – 30 persons	46	28.57
31 – 40 persons	42	26.09
More than 40 persons	29	18.01
Proportion of IT Budget(%)		
Less than 5 percent	55	34.16
5 – 10 percent	85	52.80
More than 5 percent	21	13.04

In Table 4.14 presented the demographics of organization. The results found that the majority of the organizations were industrials which were accounted for 22.98 percent. The services organization which were sub ordinary accounted for 13.04 percent and consumer productions, and financial which were both fewest accounted for 9.94 percent. The majority of number of year in operation were between 21 and 30 years which were accounted for 28.57 percent. The operation time between 1 and 20 years which were sub ordinary accounted for 27.33 percent and the organization which operated more than 40 years were fewest accounted for 18.01 percent. Most of organizations have working staff less than 500 persons which were accounted for 38.52 percent. The organizations which have working staff between 500 and 1,000 persons which were sub ordinary accounted for 29.81 percent and organizations which have working staff between 2,001 and 3,000 persons which were fewest accounted for 6.21 percent.

The majority of them have working staff in information technology (IT) department between 21 and 30 persons which were accounted for 28.57 percent. The IT department of organizations which have working staff between 1 and 20 persons which were sub ordinary accounted for 27.33 percent and the IT department of organizations which have working staff more than 40 persons which were fewest accounted for 18.01 percent. The majority of proportional of IT budget were between 5 and 10 percent which were accounted for 52.80 percent. The proportional of IT budget were less than 5 percent which were sub ordinary accounted for 34.16 percent and the fewest of proportional of IT budget were more than 10 percent accounted for 13.04 percent.

4.7 Results of Constructs

This section presented the descriptive statistics including mean and standard deviation of the four constructs of the research model including strategic IT alignment, IS capabilities, IT support for core competencies, and organization performance. The interpretation the level of mean agreement have 3 levels, the meaning of each level was in Table 4.15.

Table 4.15 The Meaning of Mean Agreement

Level of Mean Agreement	Meaning
1.00 – 1.66	Disagree
1.67 – 3.33	Agree
3.34 – 5.00	Strongly Agree

4.7.1 Results of Strategic IT Alignment

This part presented the descriptive statistics including mean and standard deviation of the first construct which was strategic IT alignment.

Table 4.16 Mean and Standard Deviation of Organization's Strategic IT Alignment

Characteristics	$\overline{X}$	Standard Deviation
Alignment of the Business Plan with IT Plan		
1. The Business Plan refers to the IS Plan.	3.63	0.677
2. The Business Plan refers to specific IS applications and information technologies.	3.52	0.603
3. The Business Plan utilizes the strategic capability of IS.	3.78	0.722
4. The Business Plan contains reasonable expectations of IS.	3.66	0.672
Alignment of the IT Plan with Business Plan		
5. The IS Plan reflects the business plan, mission, and goals.	3.84	0.641
6. The IS Plan supports the business strategies.	4.20	0.663
7. The IS Plan recognizes external business environment forces.	3.78	0.609
The CEO Participates in IT Planning:		
The CEO ….		
8. plays an important role in the corporate IS steering committee.	4.06	0.722
9. has frequent informal contacts with IS management.	3.73	0.652
10. regards spending on IS as strategic investments rather than expenses to be controlled.	3.75	0.689

Table 4.16 Mean and Standard Deviation of Organization's Strategic IT Alignment (Cont.)

Characteristics	$\bar{X}$	Standard Deviation
The CIO Participates in Business Planning :		
The IT executive …		
11. regularly attends business planning meetings.	3.77	0.727
12. contributes to the formulation of business goals.	3.76	0.714
13. has regular informal contacts with top management.	3.76	0.657
14. has frequent contacts with the CEO.	3.76	0.628

In Table 4.16 presented the mean and standard deviation of strategic IT alignment which comprised alignment of the business plan with IT plan, alignment of the IT plan with business plan, the CEO participates in IT plan, and the CIO participates in business plan. Each variable consisted of three or four items which deleted some items. The results found that the first dimension was BP-IT plan (Alignment of the Business Plan with IT Plan) had mean agreement between 3.52 and 3.78 which portended that CIO strongly agree this dimension. While the second dimension was IT-BP plan (Alignment of the IT Plan with Business Plan) had mean agreement between 3.78 and 4.20 which portended that CIO strongly agree this dimension. The CEO participates in IT planning which the third dimension had mean agreement between 3.73 and 4.06, and the last was The CIO participates in business planning had mean agreement between 3.76 and 3.77 which purported that CIO strongly agree both dimensions.

Consideration the maximum mean item was "the IS plan support the business strategies" which mean was 4.20, the item which was sub ordinary was "the CEO plays an important role in the corporate IS steering committees" with mean was 4.06, and the minimum mean item was "the business plan refers to specific IS applications and information technologies" with mean was 3.52.

4.7.2 Results of IS Capabilities

This section was shown the mean and standard deviation of the IS capabilities construct.

Table 4.17 Mean and Standard Deviation of IS Capabilities

Characteristics	$\bar{X}$	Standard Deviation
Inside-Out Capabilities		
1. The IT/IS staff have good and advance technical IT skills.	3.98	0.542
2. There are capabilities to provide IS development with new technologies in the future.	3.97	0.637
3. There are capabilities to provide efficient and Cost-Effective IS Operation.	4.12	0.616
Outside-In Capabilities		
4. There are capabilities to work with supplier and outsourcing partners to develop appropriate IS for firm.	4.01	0.548
5. There are capabilities to work with customers to provide solutions, support, and services.	3.93	0.549
6. There are capabilities to develop and manage IS projects rapidly.	3.99	0.632
Spanning Capabilities		
7. There are capabilities to integrate IS function with other functional areas of the organizations.	4.02	0.607
8. There are capabilities to align IS function with other functional areas of the organizations.	3.94	0.588
9. There are capabilities to plan and manage IS architectures and standards for the organizations.	3.99	0.622

In Table 4.17 presented the mean and standard deviation of the IS capabilities comprised Inside-Out capabilities, Outside-In capabilities, and Spanning capabilities, each variable comprised three items which deleted some items. The results found that the first dimension was Inside-Out capabilities had mean agreement between 3.97 and

4.12 which portended that CIO strongly agree this dimension. While the second dimension was Outside-In capabilities had mean agreement between 3.93 and 4.01, and Spanning capabilities had mean agreement between 3.94 and 4.02 which determined that the CIO strongly agree both dimensions.

Consideration the maximum mean item was “there are capabilities to provide efficient and cost effective IS operation” which mean was 4.12, the sub ordinary were “there are capabilities to integrate IS function with other functional areas of the organizations” which mean was 4.02, and the minimum mean item was “there are capabilities to work with customers to provide solutions, support, and services” which mean was 3.93.

4.7.3 Result of IT support for core competencies

The mean and standard deviation of the IT support for core competencies are also depicted in Table 4.18.

Table 4.18 Mean and Standard Deviation of IT support for core competencies

Characteristics	$\bar{X}$	Standard Deviation
IT Support for Market-Access Competency		
1. Determining customers requirements (e.g., products, preference, pricing, and quantity).	3.68	0.686
2. Tailoring the products/services to match customers’ needs.	3.83	0.709
IT Support for Integrity-Related Competency		
3. Integrating internal business units.	3.96	0.595
4. Using IT for increasing the speed of activities.	4.22	0.559
IT Support for functionality-Related Competency		
5. Developing new products/services.	3.69	0.709
6. Improving the speed of product development.	3.68	0.704
7. Increasing the speed of responding to business opportunities/threats.	3.99	0.666
8. Identifying new market segments.	3.52	0.643

In Table 4.18 described the mean and standard deviation of the IT support for core competencies consisted IT support for Market-Access competency, IT support for integrity-related competency, and IT support for functionality-related competency, the first and second variables consisted of two items, and the last variables comprised four items which deleted some items. The results showed that the IT support for Market-Access competency had mean agreement between 3.68 and 3.83 which asserted that CIO strongly agree this dimension. While IT support for integrity-related competency had mean agreement between 3.96 and 4.22, and IT support for functionality-related competency had mean agreement between 3.52 and 3.99 which interpreted that the CIO strongly agree both dimensions.

Regarding the maximum mean item was "using IT for increasing the speed of activities" which was 4.22, the sub ordinary item was "increasing the speed of responding to business opportunities/threats" which mean was 3.99, and the minimum mean item was "Identifying new market segments" which mean was 3.52.

4.7.4 Result of Organization Performance

The mean and standard deviation of the organization performance are appeared in Table 4.19.

Table 4.19 Mean and Standard Deviation of the Organization Performance

Characteristics	$\bar{X}$	Standard Deviation
Organization Performance in Financial Perspective		
1. Our profit is increasing when compared with previous year.	3.79	0.770
2. Our Return Of Asset(ROA) is more than previous year.	3.65	0.709
3. Our market share has exceeded that of our competitors.	3.56	0.697
Organization Performance in Customer Perspective		
4. Our customers remain satisfaction in our products and services.	3.96	0.601
5. We always build good relationship with our customers.	4.12	0.646
6. Our customers retention has exceeded that of our competitors.	3.94	0.691

Table 4.19 Mean and Standard Deviation of the Organization Performance (Cont.)

Characteristics	$\bar{X}$	Standard Deviation
Organization Performance in Human Resource Perspective		
7. The employees satisfy in their work.	3.84	0.628
8. We have clearly work layout for guidelines to employees behave in working.	3.94	0.649
9. We encourage our employees to develop their knowledge and Skills.	4.06	0.649
Organization Performance in Organization Effectiveness Perspective		
10. We design productivity exceeded that of our competitors	3.63	0.722
11. We have brought new products and services to the market faster than of our competitors.	3.59	0.702
12. Our Information Management have effective to support our business processes more than of our competitors.	3.69	0.673

In Table 4.19 presented the mean and standard deviation of the four variable perspective, human resource perspective, and organization effectiveness perspective, which consisted of three items of each variable after deleted some items. The results showed that the financial perspective had mean agreement between 3.56 and 3.79 which asserted that CIO strongly agree this dimension. While customer perspective had mean agreement between 3.94 and 4.12 which showed that CIO strongly agree this dimension. Whilst human resource perspective had mean agreement between 3.84 and 4.06, and organization effectiveness perspective had mean agreement between 3.59 and 3.69 which interpreted that the CIO strongly agree both dimensions.

Considering the maximum mean item was “We always build good relationship with our customers” with mean was 4.12, the sub ordinary item was we encourage our employees to develop their knowledge and skills which mean was 4.06. The minimum mean item was “Our market share has exceeded that of our competitors” which mean was 3.56.

4.8 Model Validity

Before testing the hypothesis of the framework, the study should investigated the model validity. The model validity is important to measure that the model of the study is efficient and can measure the constructs. There are two key measures of model performance which are validity and reliability, because the model is estimated from the data which were collected from random sampling technique (Coppock, 2002). Thus, the model validity must be testing to confirm that the model can measure the constructs and be convinced in the model appropriately. The statistic for investigation the model validity are both reliability and validity which are including convergent validity and discriminant validity. The statistic consists Cronbach's alpha, composite reliability, average variance extracted(AVE), and $\sqrt{AVE}$.

The convergent validity uses to measure the constructs that are abstract and there are not own data, but they use data from manifest variable. So, the convergent validity indicates that these indicators can measure the same constructs that are according to the theories or literatures of the study(Chin, 2001; Piriyakul, 2010). The statistic includes factor loading and AVE by loading should be over 0.70 and AVE should be more than 0.5. Besides the discriminant validity uses $\sqrt{AVE}$ for confirm the preciseness of measurement of each construct can be measure only their own, which $\sqrt{AVE}$ should be more than 0.50 (Chin, 2001 ; Piriyakul, 2010).

Moreover, the reliability is two indicators including Cronbach's alpha and composite reliability (CR) for confirmation that both indicators unify and are able to measure the constructs consistency. The Cronbach's alpha and composite reliability should be over 0.70 (Chin, 2001; Piriyakul, 2010). The value of both validity and reliability are shown in Table 4.20 by using PLS. The validity and reliability for instrument were presented in topic 4.4 (construct assessment and validity analysis).

Table 4.20 Reliability and Discriminant Validity for Model Measurement

Construct	Cronbach's Alpha	CR	AVE	$\sqrt{AVE}$
Bplan	0.923	0.826	0.549	0.7409
ITplan	0.918	0.836	0.629	0.7931
CEO	0.924	0.778	0.554	0.7443
CIO	0.918	0.879	0.645	0.8031
Inside	0.916	0.906	0.763	0.8735
Outside	0.919	0.904	0.758	0.8706
Spanning	0.918	0.916	0.732	0.8556
Competency	0.905	0.854	0.663	0.8142
Finance	0.926	0.914	0.781	0.8837
Customer	0.914	0.897	0.745	0.8631
Human	0.916	0.890	0.730	0.8544
Organize	0.915	0.892	0.734	0.8567

The results revealed Cronbach's alpha and composite reliability(CR) value were higher than 0.7 (Ho, 2006; Chin, 2001; Piriyakul, 2010), AVE (Average Variance Extracted) were higher than 0.5 , and $\sqrt{AVE}$ were higher than 0.5 thus it could be concluded that the constructs were best for measurement in the study (Fornell & Larcker, 1981; Chin, 1998 ; Chin, 2001 ; Piriyakul, 2010).

4.9 Hypothesis Testing Results

Research Questions

This section demonstrated the results of the main three research questions: (1) Is there a relationship between strategic IT alignment and IT support for core competencies?; (2) Is there a relationship between IS capabilities and IT support for core competencies?; and (3) Is there a relationship between IT support for core competencies and organization performance?.

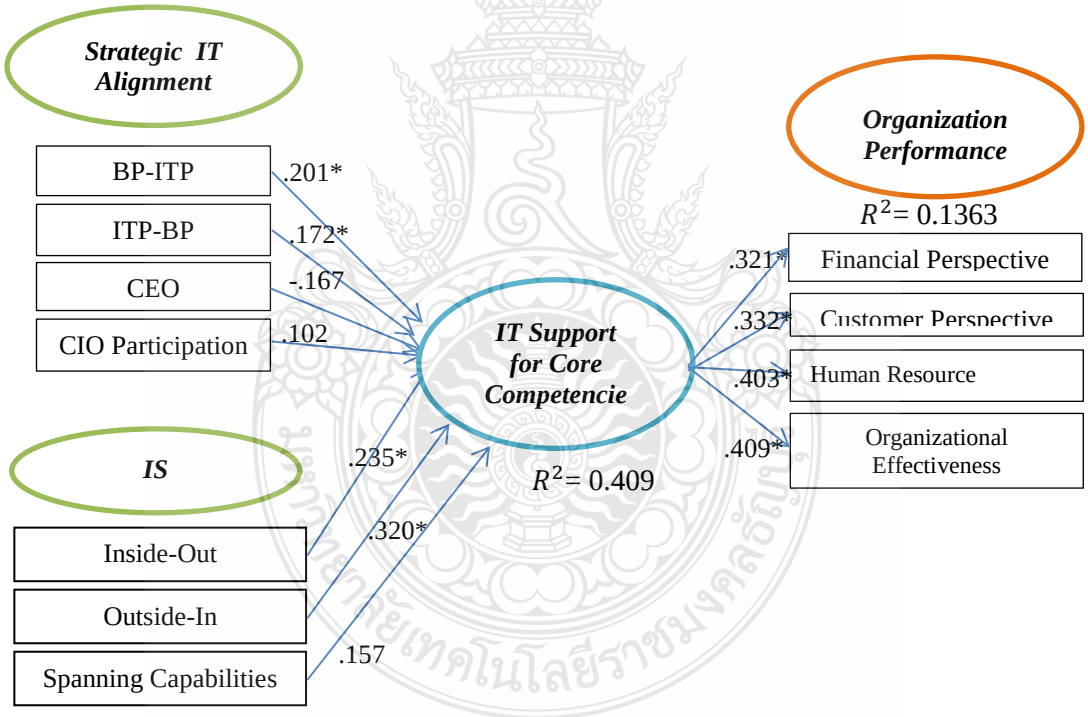
From three research questions and reviewed literature four main constructs from conceptual framework, the hypothesis were conducted in three hypothesis below. The results of model in this study was presented in Figure 4.1.

Main Hypothesis from the Model

H1: There is a positive relationship between strategic IT alignment and IT support for core competencies.

H2: There is a positive relationship between IS Capabilities and IT support for core competencies.

H3: There is a positive relationship between IT support for core competencies and organization performance.



Note : * Significance level at 0.05

Figure 4.2 The results of testing the structural model of the proposed theoretical Framework

4.9.1 The Relationship between Strategic IT Alignment and IT Support for core competencies.

H1: There is a positive relationship between strategic IT alignment and IT support for core competencies.

The hypothesis H1 required to explore the relationship between strategic IT alignment and IT support for core competencies. Since the strategic IT alignment consisted of four variables including business plan and IT plan (BP-ITP) alignment, IT plan and business plan (ITP-BP) alignment, CEO participation, and CIO participation. So, the hypothesis H1 comprised four hypothesis below.

H1a: There is a positive relationship between BP-ITP alignment and IT support for core competencies.

H1b: There is a positive relationship between ITP-BP alignment and IT support for core competencies.

H1c: There is a positive relationship between CEO participation and IT support for core competencies.

H1d: There is a positive relationship between CIO participation and IT support for core competencies.

The last topic was presented the model validity, the result a asserted that the model is suitable for testing the hypothesis. The results for each sub hypothesis was presented in Table 4.21.

Table 4.21 The Results of Hypothesis Testing of the Relationship between Strategic IT Alignment and IT Support for core competencies.

Hypothesis	Coef. (S.E.)	t-stat	p-value	Result
H1a: There is a positive relationship between BP-ITP alignment and IT support for core competencies.	0.201 (.1243)	1.9824	0.049*	Supported
H1b: There is a positive relationship Between ITP-BP alignment and IT support for core competencies.	0.172 (.1451)	1.9721	0.050*	Supported
H1c: There is a positive relationship Between CEO participation and IT support for core competencies.	-0.167 (.1754)	1.6984	0.091	Not Supported
H1d: There is a positive relationship Between CIO participation and IT support for core competencies.	0.102 (.1582)	1.1012	0.272	Not Supported

Note : * Significance level at 0.05

4.9.1.1 Hypothesis H1 (H1a)

H1a: There is a positive relationship between BP-ITP alignment and IT support for core competencies.

The value of t-test showed that the estimated coefficient value was 0.201, standard error (S.E.) was 0.1243 with t statistic was 1.9824, and p-value was 0.049 indicating that there is a positive relationship between BP-ITP alignment and IT support for core competencies at a significance level of 0.05. Consequently, it could be concluded that H1a was supported the original theory.

4.9.1.2 Hypothesis H1 (H1b)

H1b: There is a positive relationship between ITP-BP alignment and IT support for core competencies.

The value of t-test illustrated that the estimated coefficient value was 0.172, standard error (S.E.) was 0.1451 with t statistic was 1.9721, and p-value was 0.050

indicating that there is a positive relationship between ITP-BP alignment and IT support for core competencies. Consequently, it could be concluded that H1b was supported the original theory.

4.9.1.3 Hypothesis H1 (H1c)

H1c: There is a positive relationship between CEO participation and IT support for core competencies.

The value of t-test revealed that the estimated coefficient value was -0.167, standard error (S.E.) was 0.1754 with t statistic was 1.6984, and p-value was 0.091 indicating that there is not a positive relationship between CEO participation and IT support for core competencies. Thus, it could be concluded that H1c was not supported the original theory.

4.9.1.4 Hypothesis H1 (H1d)

H1d: There is a positive relationship between CIO participation and IT support for core competencies.

The value of t-test revealed that the estimated coefficient value was 0.102, standard error (S.E.) was 0.1582 with t statistic was 1.1012, and p-value was 0.270 indicating that there is not a positive relationship between CIO participation and IT support for core competencies. Thus, it could be concluded that H1d was not supported the original theory.

4.9.2 The Relationship Between IS Capabilities and IT Support for Core Competencies.

H2: There is a positive relationship between IS Capabilities and IT support for core competencies.

The hypothesis H2 wished to examine the relationship between IS Capabilities and IT support for core competencies. Since the IS Capabilities consisted three variables including inside-out capabilities, outside-in capabilities, and spanning capabilities. So, the hypothesis H2 comprised three sub hypothesis below.

H2a: There is a positive relationship between inside-out capabilities and IT support for core competencies.

H2b: There is a positive relationship between outside-in capabilities and IT support for core competencies.

H2c: There is a positive relationship between spanning capabilities and IT support for core competencies.

The results for each sub hypothesis was presented in Table 4.22

Table 4.22 The Results of Hypothesis Testing of the Relationship Between IS Capabilities and IT Support for Core Competencies.

Hypothesis	Coef. (S.E.)	t-stat	p-value	Result
H2a: There is a positive relationship between inside-out capabilities and IT support for core competencies.	0.235 (.1728)	2.1323	0.034*	Supported
H2b: There is a positive relationship Between outside-in capabilities and IT support for core competencies.	0.320 (.1688)	2.2831	0.024*	Supported
H2c: There is a positive relationship between spanning capabilities and IT support for core competencies.	0.157 (.1784)	1.8801	0.061	Not Supported

Note: *Significance level at 0.05

4.9.2.1 Hypothesis H2 (H2a)

H2a: There is a positive relationship between inside-out Capabilities and IT support for core competencies.

The value of t-test revealed that the estimated coefficient value was 0.235, standard error (S.E.) was 0.1728 with t statistic was 2.1323, and p-value was 0.034 revealing that there is a positive relationship between inside-out capabilities and IT support for core competencies at a significance level of 0.05. Consequently, it could be concluded that H2a was supported the original theory.

4.9.2.2 Hypothesis H2 (H2b)

H2b: There is a positive relationship between outside-in capabilities and IT support for core competencies.

The value of t-test revealed that the estimated coefficient value was 0.320, standard error (S.E.) was 0.1688 with t statistic was 2.2831, and p-value was 0.024 pointing out that there is a positive relationship between outside-in capabilities and IT support for core competencies at a significance level of 0.05. Therefore, it could be concluded that H2b was supported the original theory.

4.9.2.3 Hypothesis H2 (H2c)

H2c: There is a positive relationship between spanning capabilities and IT support for core competencies.

The value of t-test disclosed that the estimated coefficient value was 0.157, standard error (S.E.) was 0.1784 with t statistic was 1.8801, and p-value was 0.061 indicating that there is not a positive relationship between spanning capabilities and IT support for core competencies. Thus, it could be concluded that H2c was not supported the original theory.

4.9.3 The Relationship Between IT support for Core Competencies and Organization Performance.

H3: There is a positive relationship between IT support for core competencies and organization performance.

The hypothesis H3 desired to investigate the relationship between IT support for core competencies and organization performance. Because the organization performance comprised four variables consisted financial performance, customer performance, human resource performance, and organizational effectiveness performance. So, the hypothesis H3 comprised four sub hypothesis below.

H3a: There is a positive relationship between IT support for core competencies and organization performance in financial perspective.

H3b: There is a positive relationship between IT support for core competencies and organization performance in customer perspective.

H3c: There is a positive relationship between IT support for core competencies and organization performance in human resource perspective.

H3d: There is a positive relationship between IT support for core competencies and organization performance in organizational effectiveness perspective.

The results for each sub hypothesis was presented in Table 4.23

Table 4.23 The Results of Hypothesis Testing of Relationship Between IT Support for Core Competencies and Organization Performance**.**

Hypothesis	Coef. (S.E.)	t-stat	p-value	Result
H3a: There is a positive relationship between IT support for core competencies and organization performance in financial perspective	0.321 (.1401)	2.4915	0.013*	Supported
H3b: There is a positive relationship between IT support for core competencies and organization performance in customer perspective.	0.332 (.1161)	2.8596	0.005*	Supported
H3c: There is a positive relationship between IT support for core competencies and organization performance in human resource perspective.	0.403 (.1449)	2.7812	0.006*	Supported
H3d: There is a positive relationship between IT support for core competencies and organization performance in organizational effectiveness perspective.	0.409 (.0802)	5.1008	0.000*	Supported

Note:* Significance level at 0.05

4.9.3.1 Hypothesis H3 (H3a)

H3a: There is a positive relationship between IT support for core competencies and organization performance in financial perspective.

The value of t-test presented that the estimated coefficient value was 0.321, standard error (S.E.) was 0.1401 with t statistic was 2.4915, and p-value was 0.013 pointing out that there is a positive relationship between IT support for core competencies and organization performance in financial perspective at a significance level of 0.05. Hence, it could be concluded that H3a was supported the original theory.

4.9.3.2 Hypothesis H3 (H3b)

H3b: There is a positive relationship between IT support for core competencies and organization performance in customer perspective.

The value of t-test presented that the estimated coefficient value was 0.332, standard error (S.E.) was 0.1161 with t statistic was 2.8596, and p-value was 0.005 pointing out that there is a positive relationship between IT support for core competencies and organization performance in customer perspective at a significance level of 0.05. Thus, it could be concluded that H3b was supported the original theory.

4.9.3.3 Hypothesis H3 (H3c)

H3c: There is a positive relationship between IT support for core competencies and organization performance in human resource perspective.

The value of t-test revealed that the estimated coefficient value was 0.403, standard error (S.E.) was 0.1449 with t statistic was 2.7812, and p-value was 0.006 indicating that there is a positive relationship between IT support for core competencies and organization performance in human resource perspective at a significance level of 0.05. Thus, it could be concluded that H3c was supported the original theory.

4.9.3.4 Hypothesis H3 (H3d)

H3d: There is a positive relationship between IT support for core competencies and organization performance in organizational effectiveness perspective.

The value of t-test showed that the estimated coefficient value was 0.409, standard error (S.E.) was 0.0802 with t statistic was 5.1008, and p-value was 0.000 indicating that there is a positive relationship between IT support for core competencies and organization performance in organizational effectiveness perspective at a significance level of 0.05. Consequently, it could be concluded that H3d was supported the original theory.

Table 4.24 Summary of hypothesis testing of the proposed theoretical model

hypothesis	Results
H1a: There is a positive relationship between BP-ITP alignment and IT support for core competencies.	Supported
H1b: There is a positive relationship between ITP-BP alignment and IT support for core competencies.	Supported
H1c: There is a positive relationship between CEO participation and IT support for core competencies.	Not Supported
H1d: There is a positive relationship between CIO participation and IT support for core competencies.	Not Supported
H2a: There is a positive relationship between inside-out capabilities and IT support for core competencies.	Supported
H2b: There is a positive relationship between outside-in capabilities and IT support for core competencies.	Supported
H2c: There is a positive relationship between spanning capabilities and IT support for core competencies.	Not Supported
H3a: There is a positive relationship between IT support for core competencies and organization performance in financial perspective.	Supported
H3b: There is a positive relationship between IT support for core competencies and organization performance in customer perspective.	Supported
H3c: There is a positive relationship between IT support for core competencies and organization performance in human resource perspective.	Supported
H3d: There is a positive relationship between IT support for core competencies and organization performance in organizational effectiveness perspective.	Supported

The summary of hypothesis testing in Table 4.24 revealed that most of hypothesis supported the proposed theoretical model, there were three hypothesis did not supported the proposed theoretical model and the literatures including H1c, H1d, and H2c at a significance level of 0.05.

In conclusion, the strategic IT alignment affects on IT support for core competencies partially; the IS capabilities positive affects on IT support for core competencies partially; and IT support for core competencies positive affects on the organization performance. In addition, we can conclude that the strategic IT alignment and IS capabilities positive influences organization performance through IT support for core competencies as the mediator of the model.

4.10 Results of the Recommendation form

This section presents the results; which were collected from twenty CIOS' (chief information officers) recommendation by using the recommendation form. In this research, we employ the recommendation form to ask the CIO's opinion about information technology. It comprises eight questions (see in Appendix I). The question 1 asks for applications of IT affect the organizational operation, the question 2 and 3 ask about making and key factor for the success of the IT strategies. The question 4 and 5 are about the process and who are related to do IT strategic plan. The question 6, 7, 8 are asked about the management and applications of IT in the organization. The answers from these questions are qualitative data. So, the content analysis is employed to data analysis.

Content analysis developed from Lindesmith's theory namely "The Constant Comparative Method of Qualitative Analysis" in 1931. Later, there are many techniques and software packages which were developed by academic researchers and practitioners from this theory for example, Holsti, 1969; Kerlinger, 1986; Krippendorff, 2003. Content analysis is a method for studying and analyzing the qualitative data that has 5 types of texts: 1) written texts (books, journal, etc.), 2) oral texts (speech, opinion, etc.), 3) iconic texts (drawings, icons, etc.), 4) audio-visual text (TV program, movies), and 5) hypertext which can be one or more texts from the internet (Krippendorff, 2003).

The typological analysis type that analyzed key word of texts and arrange in group is used; if they relate or have the same meaning (Hosti, 1969).

4.10.1 The advances and Applications of IT Affect the Organizational Operation

We found that the question is " the advances in and applications of IT affect their organizational operation" , which are answered by CIOS can be concluded in four perspectives as listed.

1) marketing perspective.

2) operation perspective.

3) accounting and financial perspective.

4) executives' decision.

1. Marketing Perspective

The importance of this perspective is a section of organization has closed relations with the customs and stakeholders. This section provides and manages income for the organizations. In the CIOS' opinion, applications of IT are the operational capabilities. Since, there are the efficiency database and applications software, which can collected and managed data and information for their customers, providers, and stakeholders.

Besides, the ERP (Enterprise Resources Planning) system consists of many sub systems, such as supply chain, sale, purchasing, procurement etc. It can operate and manage the tasks, which relate their customers such as presentation products, sales and services, promotion, and delivery products conveniently and swiftly that can increase the customers' satisfaction. In addition, they can enhance the potentiality in competitive with competitors by analyzing the marketing data competitive rapidly, which can increase their chances for quick customers responsibility. Moreover, the applications of IT can provide the functional of checking support system, and developing new products and services, we can summarized that they support in market responsiveness.

It is consistency and support the definition and results of many researchers. The market responsiveness is the firm's ability relates to collection of information from external sources. The dissemination of market intelligence can manage, develop project

and response rapidly by aligning the strategies when it is necessary (Jarvenpa & Leidner, 1998; Bharadwaj, 2000; Wade & Hulland, 2004).

2. Operation

We found that the applications of IT can update the process of working all times, the communication between organizations' section smoothly, comfortable and quickly. Furthermore, they reduce the operation time in each step, so the tasks are finished well-timed and accuracy.

3. Accounting and Financial

Forasmuch as there are database and applications which collected data and managed tasks in accounting and financial, and provide the numerous reports for administrators. So, there are many routines for easy checking operations, comfortable and increasing the confident of working. Moreover, the applications of IT are able to control and reduce the organizations' costs.

4. The Executives' Decision

The most important of usage the applications of IT is as tool for executives use in decision making. Since IT is a driven for core competencies of organizations' operation. Furthermore, they support and enhance the business strategic plan.

Finally, the applications of IT are summarised as tools of organization's administrators and their staffs use it for decision making, management, and operation their duties to achieve the organization performance.

4.10.2 The Success from Strategic IT plan

The success from strategic IT plans is the next interrogation with the CIOs. We found the success of this case has two views are the executive of top level, and IT resources.

1. The Executive of Top Level

The first view of strategic IT plans is the organization's success which relate to the executives' management for reviewing both the strategic IT plans and strategic business plans as are consistent medium-term plans and long-term plans. They defined both of them as the annual action plans policy which include doing the strategic plan in five years term. Besides, some organizations have strategic plan which linked to the

aboard mother company, and gradually developed appropriately with the business environment and the budget has been allocated.

2. The IS Resources

This perspective is pointed to the usage of IS resources capabilities, the results showed that the success of strategic IT plan is due to used the IS resources effectiveness, because there are the good IT infrastructure and increasing the multi channels for access the information. In addition, it can analyze the marketing competition data rapidly, efficiency and reduce the operation time.

Ultimately, we can conclude the executives of organizations ought review both the strategic IT plans and strategic business plans. They should imposed both medium-term plans and long-term plans. Thus, if they defined both plans as the annual action plans by identified using the IS resources worthwhile. They would attain and success the organization performance.

4.10.3 The Key Factors for Success of IT Strategies

This section would like to know about the key factors for successes of IT Strategies, the CIOS' answers showed that the successes of this section consists of two perspectives: the executives' role and management, and the IS resource capabilities, the detail of each perspective is below.

1. The Executives' Role and Management

This perspective aims to indicate the executives' role and management, they assign the policies and direction of the organization for employees' operation, the results show that the executives have role and relate in successes of IT strategies. They review and align the strategic IT plan and strategic business plan are consistency and corresponding the executives' definiteness and imperative. Besides, they encourage the strategic plan and duties of IT department, and endorse the budget for providing the resources and facilities of IT department.

2. IS Resource Capabilities

This view demonstrates IS resource capabilities that is a part of computer components, such as hardware, software, people, and data. The IS's infrastructure, communication system, and IS people's knowledge and skills compose data. Therefore, the organizations need to provide the IS resource capabilities including collaboration,

teamwork, knowledge, abilities, and skills of IT people for supporting every departments of the organizations.

Eventually, this subject illustrates that CIOs' role and management, and IS resource capabilities are the key factor for successes of IT strategies, which lead to achieve the organization performance.

4.10.4 The CEO's participate making strategic IT Plans

This matter questions about the people or department who participate in making strategic IT plans. In this research, we found the participation for making strategic IT plans have 2 patterns. The first pattern is the IT department works with marketing department, sales department, and cooperate the CEOs for defining plan, policies, running direction, budget, and CEO's requirement to attain the organization performance according to the budget allocation. The second pattern is the CIOs and the managers of every department collaborate to make the strategic IT plans and offer for approving by the CEOs.

Lastly, this matter reveals that there are many people or department participate with CIO to make the strategic IT plans. Albeit both the participation for making strategic IT plans have two patterns, but the final of making both depend on CEO.

4.10.5 Links between the strategic IT plan and Strategic Business Plan

This part discusses the links between the strategic IT plans and strategic business plans when the CIOs make the strategic IT plans. We found CIOs and their staffs confederate to make the strategic IT plans which are concordance and have direction with strategic business plans. There are SWOT analysis likewise the process of making strategic business plans due to sharing resources. Apart from that, the CIOs recommend that when the organizations make the strategic IT plans, they should consider and use strategic business plans as the master plan and try to make and align the strategic IT plans are in accordance with the strategic business plans. If they work from above, the organization will have the efficient IT plans for working to attain the organization performance.

4.10.6 The Resources and IT Capabilities Management

For the organizations' resources and IT Capabilities question. The CIOs reply that their organizations have IT resources and IT capabilities management system which are potentiality. They use this system to manage the organizations' resources by emphasis the information technology hardware and network as the organizations' infrastructure, which are used to manipulate their resources for service every department of their organization. Thus, the organizations should be sharing the database, developing and providing modern software for supporting their both inside and outside users of the organization by linking the the network system to their branch .

In addition, the IS capability is a part of the organizations' resources. In the organizations, there are a maintenance system to maintain hardware device and a backup system to prevent the losing data. Moreover, this system provides the tools for developing the knowledge and technical skill of IT people and users.

4.10.7 The IT Support for Core Competencies

The IT support for core competencies refers to the organizations use information technology (IT) and information system (IS) to support the three core competencies of the organizations including 1) market-access competency, 2) integrity-related competency, and 3) functionality-related competency. The results reveal that the first core competency is market-access competency, they use IT for analysis, planning, and decision making in production, sale, marketing, purchasing, and delivery products to customers. The second core competency is integrity-related competency, they use IT to operate the activities both front office and back office, encouraging the duties in accounting and financial and making the CEOs' reports. They use IT support for functionality -related competency in improving speed to develop the new products and services, communicate with people both inside and outside the organizations. Moreover, they use IT support for developing the people's knowledge, skills and create new business.

4.10.8 Usage IT for Increasing the Organization Performance

The last question asks about how the organizations use IT for increasing the organization performance. The CIOs assert that the usage of IT resources and IS capabilities can encourage and increase the organization performance. They explicate

that the organizations have efficient database, applications and networking which able to execute, analyze, and manipulate reports for CEOs, CIOs. Using IS resources can support people and department both inside and outside organizations. The CIOs extend that the organization performance can consider in four perspectives are financial perspective, customer perspective, human resources perspective, and effectiveness organization perspective.

The beginning starts with the organization performances in financial performance perspective found that the usage of IT/IS can reduce, save costs, and gain increasing the profit. The customer performances view indicates that the results of usage IT/IS create the competitive advantage by consumers' behavior analysis from social media and response the customers' need.

The third performances establish in human resources perspective by usage IT resources and capabilities to develop people' knowledge and skill to work with others and succeed their activities and lead to the organization performances. The last performances view is the organization performances in organization effectiveness perspective. The results arise from the organizational operation by using IT resources and capabilities. They render to improve the operation system rapidly and conveniently in accessing the database, reduce the work time, response the CEO's need speedily and up-to-date.

4.11 Conclusion

This chapter revealed that the significant positive relationship as follows : between strategic IT alignment and IT support for core competencies, between IS capabilities and IT support for core competencies, and between IT support for core competencies and organization performance. It could be concluded that the strategic IT alignment and IS capabilities positive affect on IT support for core competencies. Furthermore, the IT support for core competencies positive influence the organization performance. Finally, it reveals that the strategic IT alignment and IS capabilities positive affect on the organization performance through IT support for core competencies as the mediator of the model.

Eventually, the CIO's answers about the importance of information technology (IT) summarizes as follows. The organization's executives use the application of IT as tools for management and decision making to attain the organization goals. They use IS resource capabilities and usage IT are driven for the organization core competencies. The CIOs and the managers of other departments confederate to establish strategic IT plans which have consonance direction strategic business plan and align appropriately. The key success factor of IT strategy is usage IS resource capabilities effectiveness to encourage the operation and activities of all departments and develop people's knowledge and skills. The usage of IT support three core competencies of organizations including market-access competency, integrity-related competency, and functionality-related competency can achieved the organization performance.

CHAPTER 5
DISCUSSIONS AND RECOMMENDATIONS

This chapter aimed to summarize the research findings in Section 5.1. The discussion and conclusions in Section 5.2 described the investigation of the relationship such as strategic IT alignment, IS capabilities, IT support for core competencies, and organization performance. Section 5.3 mentioned the implication for future research and the implication for practice. Finally, this chapter concluded with a summary of relevant points.

5.1 Summary of the Findings

The data were drawn from a final sample with 77.64 percent of the male respondents and 22.36 percent of the female respondents; in addition, their working positions were mostly managers or associate managers of 62.11 percent.

The majority of organizations were industrial sector accounted for 22.98 percent. The level of Chief Information Officer (CIO) was in the third level ranking from top managerial level for 53.41 percent. Most of organizations operated approximately 21-30 years for 28.57 percent. The total staff of organizations were less than 500 persons accounted for 38.52 percent, including IT/IS staffs around 21-30 persons accounted for 28.57 percent. Most of organizations provided the proportional of IT budgets around 5-15 percent.

The study had three research questions including (1) Is there a relationship between strategic IT alignment and IT support for core competencies?; (2) Is there a relationship between IS capabilities and IT support for core competencies?; and (3) Is there a relationship between IT support for core competencies and organization performance?

The discussion and conclusions for each hypothesis were presented in the following section.

5.2 Discussion and Recommendation

This section provided the results, discussion, and conclusion.of three research questions, the content of the results were shown below.

5.2.1 The Relationship between Strategic IT Alignment and IT Support for Core Competencies

This section aimed to investigate the relationship between strategic IT alignment and IT support for core competencies, the first hypothesis is "There is a positive relationship between Strategic IT alignment and IT support for core competencies". Because strategic IT alignment had four variables; as a result, the first hypothesis comprised of four sub hypotheses. After hypothesis testings, the results revealed that H1a (there is a positive relationship between BP-ITP alignment and IT support for core competencies), and H1b (there is a positive relationship between ITP-BP alignment and IT support for core competencies) were accepted, which supported the results of the theories and previous studies. For example, Kearns and Lederer (2003) revealed that aligning business plan with IT plan had relationship with the usage IT for core competencies. Similarly, Cump et al. (2006) reported that ICT alignment influenced the alignment performance by using ICT resource as tools for create specific ICT management in IT support for core competencies perspective, leading to competitive advantage. The study of Chen et al. (2010) reported that aligning IS strategy and business strategy for strategic management by using IS function plans and business plans supported the organization's functionality, which brought about firms to gain more potential and competitive advantage for their organizations.

Besides, Tallon and Pinsonneault (2011) revealed that the organizations used strategic IT alignment by aligned business plans and IT plans had relationship with IT flexibility in terms of IT support for core competencies perspective. Moreover, they asserted the IT flexibility, or a mediator variable, affected on firm performance.

Regarding, the strategic IT alignment was asserted by Subriadi et al. (2013). They found that adopted strategic IT alignment by aligning IT plans and business plans had significant impact on IT support for core competencies.

While H1c and H1d were not accepted, which were inconsistent with the results of Kearns and Lederer (2003), which revealed that the alignment of IT plans

with business plans(ITP-BP alignment), the CEO participates in IT planning (CEO participation), and the CIO participates in business plan (CIO participation) were significantly related to the IT support for core competencies. Considering, the study of Gerow et al. (2014) reviewed from the prior literature about relationship among strategic IT alignment, core competencies, and performance by using Meta analysis technique. They revealed that some of the findings from prior studies showed the same direction; on the other hand, some of those findings were difference. This might be because these prior studies employed in different context, leading to different results.

According to the theory of Henderson and Venkatraman (1999), it asserted that the strategic IT alignment model (SAM) which consisted four domains: business strategy, IT strategy, organization infrastructure and process, and IT infrastructure and process were related to core competencies, and organization performance. Finally, the results from the study partial supported the theory and previous studies.

When the study investigated main hypothesis (H1), the results exposed that there was a positive relationship between strategic IT alignment and IT support for core competencies at 0.10 statistical significance level which supported the original theory by Henderson and Venkatraman (1999) and previous studies such as Kearns and Lederer (2003), Cump et al. (2006), Chen et al. (2010), Tallon and Pinsonneault (2011), and Subriadi et al. (2013). They also stated that the strategic IT alignment influenced the IT support for core competencies which encouraged and led to increase the organization performance.

The reason of these results partial supported the theories and previous studies because they were different context. Most of previous studies were in western contexts; whereas, this study employed Thai data set from Thai listed on the Stock Exchange of Thailand (SET). As a result, there were different in many aspects, such as management system, executives' role, and organizational environment. Although, these organizations had explicit organization charts and administration lines ranking from top management, for meeting to manage and manipulate both business plans and IT plans. The chief executive officers (CEO) played a key roles on decision making to determine the business plans and IT plans. Forasmuch as, the results of study showed that the CIOs of these organizations were in the third order of the administration line from the

top management, so they had less power on their decision making especially for the budgets or investments in IT/IS departments. Furthermore, the results from content analysis of the CIOs' recommendations disclosed that the process of making plans starts with the CIOs participate and brainstorm with other departments for creating the strategic IT plans. Even though, the CIOs who were the chief of IT departments had duties for making strategic IT plans base on strategic business plans, but the approval of strategic IT plans were in CEOs' authorities. These results from the study confirmed that the CIOs of Thai organizations played role and had authority to create strategic IT plans but the final process ended at CEOs who were the top of administration line in the organizations.

5.2.2 The Relationship between IS Capabilities and IT Support for Core Competencies

This topic aimed to examine the relationship between IS capabilities and IT supports for core competencies; therefore, the second hypothesis was "There is a positive relationship between IS capabilities and IT supports for competencies". Because IS capabilities had three variables so, the second hypothesis comprised of three sub hypotheses. The results disclosed that H2a (There is a positive relationship between inside-out capabilities and IT supports for core competencies), and H2b (There is a positive relationship between outside-in capabilities and IT supports for competencies) were accepted, which supported the theory and previous studies. For example, Kearns and Lederer (2003) used information intensity of the value chain and scope of information usage for organization operations which were firm's resources in Resource-based View (RBV). The results showed that the information intensity and the usage of IT were related to strategic IT alignment and core competencies, leading to create competitive advantage. Likewise, Ravichandran and Lertwongsatien (2005) studied about IS resources and capabilities on RBV by linking models with IT support for core competencies, and performance. The results showed that the IS capabilities had significant positively affected on IT support for core competencies.

Rivard et al. (2006) created model for contribution of information technology to firm performance from RBV and competitive strategy. The results asserted that IT

support for firm assets in term of RBV strongly affected on IT support core competencies in terms of IT support for strategy perspective.

Thereafter, Yin and Yang (2011) investigated IT capabilities in three perspectives; IT infrastructure, managerial IT skills, and partnerships between IT and business could create competitive advantage. They reported that IT capabilities in three perspectives affected on IT assimilation in terms of competitive advantage perspective from the usage of IT support for competencies.

According to Bi et al. (2013), they explored the relationship between IT complementary resource and SME performance by employing IT complementary resources in RBV, and defining business process performance in term of activity integration and information sharing, as IT support for core competencies. Their results illustrated that the IT complementary resources in RBV affected on business process performance and led to the organization performance achievement. Therefore, the study concluded that this results support the origin theory and previous studies.

In regard to H2c (there is a positive relationship between spanning capabilities and IT support for core competencies), this hypothesis was not accepted which was inconsistent the theory of Wade and Hulland (2004) and original theory by Day (1994). The IS resources topology in three dimensions; inside-out capabilities, outside-in capabilities, and spanning capabilities were available and useful for create competitive advantages from using IT support for core competencies. Furthermore, the results were inconsistent the results of Ravichandran and Lertwongsation (2005), which showed that IS capabilities had positively affected on IT support for core competencies.

According to the theory of Day (1994) and Wade and Hulland (2004), they confirmed that the IS resource capabilities in three dimension; inside-out capabilities, outside-in capabilities, and spanning capabilities affected on IT support for core competencies and created competitive advantage. Forasmuch as, the results of this variable was non corresponded the theory and the previous studies such as Ravichandran and Lertwongsation (2005), Yin and Yang (2011), and Bi et al. (2013). Finally, the results of the study partial supported the theory and previous studies.

When the study investigated the second main hypothesis from the research question (H2) the results revealed that there was a positive relationship between IS

capabilities and IT support for competencies at 0.05 statistical significance level, which strongly supported the original theories of Day (1994), Wade and Hulland (2004) and previous studies such as Ravichandran and Lertwongsatien (2005), Rivard et al. (2006), Yin and Yang (2011) and Bi et al. (2013).

There was only spanning variable did not affect on the IT support for competencies, which this caused the IS resource capabilities partial supported IT support for competencies. This might be because the different organizational environments and there were some items of spanning capabilities similar to the items of inside-out capabilities. From the CIO's recommendations of each organization about the usage of IT support the functionality and activities, they stated that their organizations paid attention in usage IS resources capabilities for support and manage the functionality of each departments in term of holistic organizations.

5.2.3 The Relationship between IT Support for Core Competencies and Organization Performance

This subsection investigated the relationship between IT support for core competencies and organization performance. Thus, the hypothesis was "There is a positive relationship between IT support for core competencies and organizational performance". Since the organization performance comprised of four perspectives; organizational performance in financial perspective, organizational performance in customer perspective, organizational performance in human resources perspective, and organization performance in organizational effectiveness perspective. Thus the main hypothesis comprised of four sub hypotheses H3a, H3b, H3c, and H3d. The results indicated that IT support for core competencies had strongly positive relationship with four perspective of organization. According to Oh and Pinsonneault (2007), they stated that the use of IT application as functional support the core competencies of the organization influenced on the organizational performance. Likewise, Hasan (2008) pointed out that the IT competency affected on the organizational performance. As a result, the hypothesis H3a was accepted at 0.05 statistical significance level, reflecting the support of theory. Whereas, H3b, H3c, and H3d were accepted at 0.01 statistical significance level and also supported the theories and previous studies.

Considering, the third hypothesis from research question aimed to examine the relationship between IT support for core competencies and organization performance, so the study combined four perspectives of organizational performance, the results asserted that IT support for core competencies positively influence on all perspectives of the organizational performance based on theory and previous studies. For example of prior studies, King et al. (2001) reported that the core competencies influenced on the firm performance. Similarly, the study of Ravichandran and Lertwongsation (2005) revealed that IT support for core competencies affected on firm performance. Likewise, Hasan (2008) found that IT support for core competencies positively influenced on the organizational performance. The same as prior studies, Majeed (2011) stated that the middle management level on competencies could increase high performance.

The results from three hypothesis testings illustrated that the four constructs of the model were linkage aspects by starting with strategic IT alignment affected on IT support for core competencies, which led to create the competitive advantages. These results corresponded with the previous studies such as Kearn and Lederer. (2003); Cumps et al. (2006); Xiaoying et al. (2008). Furthermore, the relational between strategic IT alignment and IT support for competencies influenced on the organizational performance. This result harmonized the previous studies such as, Chan et al. (2006); Rivard et al. (2006); Yin and Yang (2011); and Bi et al. (2013).

The second hypothesis of the study indicated that IS capabilities effected on IT support core competencies, which was consistent with Ravichandran and Lertwongsation (2005). They asserted that IS capabilities had positively affected on IT support for competencies. Moreover, the results of the study were in line with previous studies; for instance, Chang et al. (2006); Rivard et al. (2006); Yin and Yang (2011). In addition, the relationship between IS capabilities and IT support for competencies led to achieve the organizational performance which were likewise and accordance the theory and previous studies such as, Ravichandran and Lertwongsatien (2005); Change et al. (2006); and Bi et al. (2013).

The last hypothesis illustrated that IT support for core competencies affected on the organizational performance which provided the same direction with the theories

and previous studies such as, Melville et al. (2004); Mithas et al., (2011); and Subriadi et al. (2013).

In conclusion, the integrated model between strategic IT alignment and IS capabilities in RBV perspective effecting on the IT support for core competencies as the mediating variable and also influenced on the organizational performance. The results of the study were strongly consistent with the original theory and previous studies (Henderson & Venkatraman, 1999; Day, 1994; Wade & Hulland, 2004; Ravichandran & Lertwongsation, 2005; Rivard et al., 2006; Ying & Yang, 2011; and Bi et al., 2013).

5.3 Implication for Practice and Future Research

The following implications from the results of study were demonstrated in two aspects; implication for future research and implication for practice. The details of each aspects were explained as below.

5.3.1 Implication for Future Research

The findings provided several implications for researchers who are interested in studying in related field of this study. Firstly, the future study should investigated other antecedents and consequence of strategic IT alignment such as business and IT management that contributed to success factors for strategic IT alignment (Burn & Szeto, 2000 ; Beeson & Mahamid, 2003) based on the theory of Henderson and Venkatraman (1999), where were popular among numerous researchers and practitioners to apply and study. Respecting the IT investment of organization in IT government established business/IT alignment (Haes & Grembergen, 2008; Masa'deh et al., 2008).

In addition, future research should examine other potential results of strategic IT alignment such as IS effectiveness, service orientation, IT investment, innovation strategies and knowledge management (Lee et al., 2008; Haes & Grembergen, 2008; Masa'deh et al., 2008; Pitruzzello, 2009; Tallon, 2010).

Similarly, future research should include other notions of IS resource capabilities such as the research of Yin and Yang (2011) studied firm's IT capabilities from three keys index: IT infrastructure capabilities (Melville, 2004), managerial IT skills (Melville, 2004; Bhatt, 2005), and partnership between IT and business (Reich,

2000; Bhatt, 2005) based on the notion of IS resource capabilities which developed from Ross et al. (1996) and improved again by Wade and Hulland (2004).

The future research should examine the mediator effect between IS resource capabilities and organizational performance by including the other notions of IS resource capabilities, IT complementary resources in term of resource-based view through business process (Bi et al., 2013).

The future research should investigate organizational performance by including other notions which measure the organization performance such as, Balanced Scorecard (Kaplan & Norton, 1996), the performance framework of the Institute of Accountants of Scotland (ICAS, 1993).

Moreover, the researchers and the practitioners should measure the organization performance and develop performance measurement framework (Azzone et al., 1991; Brown et al., 1995) or other frameworks.

5.3.2 Implication for Practice

The findings proposed various implications for the organization particularly those organizational performance measurement. The study used Baldrige Criteria which measured the organization performance in four perspectives; financial, customer, human resources, and organization effectiveness, each perspective used five Likert Scales. There were numerous practitioners measuring organization performance in different methods. For example, Majeed (2011) measured organizational performance in terms of return on assets (ROA), and sale growth, Lindow et al. (2010) employed the average of return of equity (ROE), and return on assets (ROA).

Considering the findings of the study made from questionnaire, so the future practitioners should measure the organizational performance from secondary data especially the financial perspective such as return of equity (ROE), and return on assets (ROA), and net profit.

Finally, the study suggests the researchers or practitioners would be study to measure the organization performance from other notions.

5.4 Chapter Summary

The findings of this study indicated that strategic IT alignment positively affected on IT support core competencies, IS capabilities strongly affected on IT support for core competencies and IT support for core competencies very strong influenced on organization performance.

Moreover, the results asserted that the integrated model between strategic IT alignment and IS capabilities influenced on the organizational performance through IT support for core competencies as the appropriated mediator of the model. It supported the previous studies of Ravichandran and Lertwongsation (2005), Tallon and Pinsonneault (2011), and Subriadi et al. (2013).

Regarding the contribution in academic approach, the results of study indicated that partial effected of strategic IT alignment influenced on the organization performance through IT support for core competencies. Hence, the theory of Henderson and Venkratraman (1999) showed that strategic IT alignment increased the organizational performance while the root of IS capabilities was RBV which was in Penrose's theory in 1959 and improved by Barney in 1991. Later Day (1994), and Ross et al. (1996) developed for IS research in name of IS capabilities. They confirmed that IS capabilities direct affected on sustainable competitive advantages. The resources and capabilities were firm's core competencies which could lead to achieve competitive advantages (Prahalad & Hamel, 1990; Barney, 1991; Ross et al., 1996; Kearns & Lederer, 2003; and Wade & Hulland, 2004).

To the best our knowledge, there was a few studies which investigated the relationship between strategic IT alignment was explained the IT support for competencies in competitive advantage perspective toward organizational performance and the study was Asian context in Thailand situation.

Moreover, strategic IT alignment was a key aspect for business firm, practitioners, and academic studies toward the future studies (Gerow et al., 2014) especially in Asian context. Their studies revealed that the strategic IT alignment had relationship with difference performance types such as financial performance, productivities performance and customer benefit performance (Gerow et al., 2014). Furthermore, the IS capabilities, IT support for core competencies, and organizational

performance were interested and important similar to strategic IT alignment, which all of them might lead to achieve the organizations' goals and organizational success.

List of Bibliography

Abdi, H. (2007). *PLS-Regression. In Salkind, N.(Ed.): Encyclopedia of Measurement and Statistics.* Thousand Oaks (CA) ; Sage, from https://www.utdallas PLSR2007-pretty.pdf.edu herve/Abdi

Acosta. P. S., Palacios, R. C., & Loukis, E. N. (2011). A Review of The Firm Within T e-Business Literature: What's Next?. *Interdisciplinary Journal of Research in Business, 1(1),* 45-52.

Andrew, K. R. (1971). The Concept of Corporate Strategy, Dow John-Irwin, Homewood. IL: Irwin.

Ariyawardana, A. (2003). Sources of Competitive Advantage and Firm Performance: The Case of Sri Lankan Value-Added Tea Producers. *Asia Pacific Journal of Management.* 20, 73-90.

Armstrong, C. P. & Sambamurthy, V. (1999). Information Technology Assimilation in Firms: The Influence of Senior Leadership and IT Infrastructures. *Information System Research, 10(4),* 304-327.

Azzone, G., Masella, C., & BerteleÁ, U. (1991), Design of performance measures for time-based companies. *International Journal of Operations & Production Management, 11(3),* 77-85.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17(1),* 99-120.

Barney, J. (2001). Resource-based theories of Competitive Advantage: A ten-Year Retrospective On The Resource-based View. *Journal of Management, 27(1),*643-650.

Beeson, I. & Mahamid, S. Al. (2003). *Survey of Strategic Alignment Indicators in Manufacturing Companies in the South-West of England*. Paper presented at the second CEMS Research Student Conference, Bristol, 15 October.

Bentler, P. M. & C. P. Chou. (1987). *Practical issues in structural modeling. Sociological Methods & Research 16(1),* 78-117.

Bhatt, G. , Emdad, A., Roberts, N., & Grover, V. (2010). Building and Leveraging Information in Dynamic Environments: The Role of IT Infrastructure Flexibility as Enabler of Organizational Responsiveness and Competitive advantage. *Information and Management Journal, 47*, 341-349.

Bharadwaj, A. S., Sambamurthy, V., & Zmud, R. W. (1998). *IT Capabilities: Theoretical Perspectives and Empirical Operationalization*. Paper Presented at the 19th International Conference on Information Systems. Helsinki, Finland. 378-385.

Bharadwaj, A. S. (2000). A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation. *MIS Quarterly. 24(1),* 169-196.

Bi, R., Davison, R. M., & Smyrnios, K. X. (2013). *The Effect Of IT Complementary Resources On Fast Growth Small-To-Medium Enterprise Performance: A Resource-Based View*. Paper Present at the PACIS 2013. International Conference.

Bird, M. S. (2010). Modern Management's Guide to Information Technology: Collection of Articles [Paperback].

Boam, R., & Sparrow, P. (1992). *Designing and Achieving Competency*. London: McGraw-Hill.

Boyatzis, R. E. (1982). *The Competent Manager : A Model for Effective Performance*. Wiley, New York, NY.

Brislin, R. W. (1986). The wording and translation of research instrument. In W. J. Lonner & J. W. Berry (Eds.), *Field methods in cross-cultural research.* 137-164. Beverly Hills, CA: Sage.

Broadbent, M. & Weill, P. (1993). Improving Business and Information Strategy Alignment: Learning from the Banking Industry," IBM Systems Journal, 32(1), 1993, pp. 162-179.

Brown, R. M., Gatian, A. W. & Hicks, J. O. (1995). Strategic Information Systems and Financial Performance. *Journal of Management Information Systems, 11(4), Spring*, 215-248.

Bruce, T. (1997). The Importance of Structure Coefficients in Structural Equation Modeling Confirmatory Factor Analysis. *Educational and Psychological Measurement, February (57):* 5-19.

Burgoyne, J. (1993). The Competence Movement: Issues, Stakeholders and prospects. *Personnel Review, 22(6),* 6-13.

Burn, J.M., & Szeto, C. (2002). A Comparison of the Views of Business and IT Management on Success Factor for Strategic Alignment. *Information And Management Journal, 37,* 197-216.

Buzzell , R. D. & Gale, B. T. (1987). *The PIMS Principle : Linking Strategy to Performance.* New York: The Free Press.

Caves, R. E. (1980). Industrial organization, corporate strategy and structure. *Journal of Econotnic Literature, 58,* 64-92.

Chamberlin, E. H. (1933). *The Theory of Monopolistic Competition.* Cambridge, MA: Harvard University Press.

Chan, Y.E., Huff, S.L., Barclay, D.W. & Copeland, D.G. (1997). Business Strategic 787, Orientation, Information Strategic Orientation, and Strategic Alignment. Information Systems Research, 8(2), 125-150.

Chan, Y. E., & Reich, B. H. (2007). IT Alignment: What Have We Learned?. *Journal of Information Technology, 22(4),* 297-315.

Chang, H.L., Weng, H.C., Chen, C.H. & Su, C, H. (2006). Resource-Based View of The Inter-Organizational Information System Capability: A Field Study in Taiwan PC Industry. From http://necuir.lib.nccu.edu.tw/bitstream.

Chang, H.L., Hsiao, H.E., Lee, Y.J. and Chang, J. (2009). *Assessing IT-Business Alignment in Service-Oriented Enterprises.* Paper presented at the Pacific Asia Conference on Information Systems, 2009. PACIS 2009. International Conference.

Chapman, R. J. (2011). *Simple Tools and Techniques for Enterprise Risk Management,* Second Edition: John Wiley.

Chen, H.M.(2008). *Towards Service Engineering: Service Orientation and Business-IT Alignment.* Proceedings of the 41st Hawaii International Conference on System Sciences 2008.

Chen, D.Q., Mocker, M. & Preston, D.S.(2010). Information Systems Strategy: Reconceptualization, Measurement, and Implications. *MIS Quarterly, 34(2)*, 233-260.

Chin, W.W. (2001). PLS Graph User's Guide Version 3.0, Retrieved March15, 2008, From http://www.pubinfo.vcu.edu/carma/Documents/OCT1405/ PLSGRAPH3.0Manual.hubona.pdf

Collis, D. J. & Montgomery, C. A. (1995). Competing on Resources: Strategy in the 1990s, *Harvard Business Review,* 188-128.

Cooper, D. R., & Schindler, P. S. (2003). Business Research Methods (7^{th} ed.). New York: McGraw Hill.

Coppock, D. S. (2002). Model Validity, Information Management News, Mar 22. From http://www.information-management.com/news/columns/-4933-1.html

Cronbach, L. J. (1951). Coefficient Alpha and the Internal Structure of Test. *Psychometrika, 16*, 297-334.

Cumps, B., Viaene, S., Dedene, G. & Vandenbulcke, J. (2006). *An Empirical Study on Business/ICT Alignment in European Organizations.* Paper presented at the 39th Hawaii International Conference on System Sciences. International Conference.

Day, G. (1994). The Capabilities of Market-Driven Organizations. *Journal of Marketing, 58(4),* 37-52.

DeCarlo, L. T. (1997). On the Meaning and Use of Kurtosis. *Psychological Methods, 2(3),* 292-307.

Dilanthi, A., David, B., Marjan, S., & Rita, N. (2002). Quantitative and qualitative research in the built environment: application of mixed research approach. Work Study, 51(1), 17 – 31.

Earl, M. J. (1993). Experiences in Strategic Information Systems Planning. *MIS Quarterly, 17(1),* 1-24.

Eisenhardt, K. M. & Martin, J. A. (2000). Dynamic Capabilities:What Are They?," *Strategic Management Journal, 21(10-11),* 1105-1121.

Fahy, J. & Smithee, A. (1999). Strategic Marketing and the Resource Based View of the Firm. Academy of Marketing Science Review. (10).

Feeny, D.F., & Ives, B. (1990). In Search of Sustainability: Reaping Long-Term Advantage from Investments in Information Technology. *Journal of Management Information System, 7(1),* 27-46.

Feeny, D.F., & Willcocks, L.P. (1998). Core IS Capabilities for Exploiting Information Technology. *Sloan Management Review, 39(3),* (Spring 1998), 9-21.

Fornell, C. G., & Bookstein, F. L. (1982). Two Structural Equation Models: LISREL and PLS Applied to Consumer Exit-Voice Theory. *Journal of Marketing Research, 19(4),* 440–452.

Foss, N. J. (1997). *The Resource-Based Perspective: An Assessment and Diagnosis of Problems: 1-33.* Copenhagen Business School, Department of Industrial Economics and Strategy: DRUID**.** Working Papers series 97-1**.**

Foss, N. J., & Knudsen, T. (2000). *The Resource-Based Tangle: Towards a Sustainable Explanation of Competitive Advantage*. DRUID Summer Conference: The Learning Economy–Firm, Regions and Nation Specific Institutions. Forthcoming in Managerial & Decision Economics. 2003: Rebuild, Denmark.

Fraser, G. C. (1994). *Success runs in our race: The complete guide to effective networking in the African American community.* New York: W. Morrow.

Frolick, M. N., & Ariyachandra, T. R. (2006). Business performance management: one truth. *Information Systems Management Winter,* 41–48. http://www.ism-journal.com.

Gallier, R.D. , Leidner, D.E., & Baker, B.S.H. (1999) Strategic Information and Management: Challenges and Strategies in Managing InformationSystem , 2nd edition , Oxford: Butterworth-Heinemann.

Gerow, J. E., Grover, V., Thatcher, J., & Roth, P. L. (2014). Looking Toward The Future Of IT-Business Strategic Alignment Through The Past: A Meta Analysis. *MIS Quarterly, 15(6),* 205-224.

Grant, K., Hackney, R., & Edgar, D. (2010). *Strategic Information Systems Management.*, Singapore: Seng Lee Press.

Grant, R.M., (1991), The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review, 33(3).*

Grembergen, W. V., & Haes, S. D. (2010). A Research Journey into Enterprise Governance of IT, Business/IT Alignment and Value Creation", *International Journal of IT/Business Alignment and Governance,* No. 1, 1–13.

Haenlein, M., & Kaplan, A. M. (2004). A Beginner's Guide to Partial Least Squares Analysis. Understanding Statistics, 3(4), 283-297.

Haes, S.D. & Grembergen, W.V. (2008). *Analyzing the Relationship Between IT Governance and Business/IT Alignment Maturity.* Paper presented at the 41st Hawaii International Conference on System Sciences. 2008. I International Conference.

Hager, P., Athanasou, J., & Gonczi, A. (1994). *Assessment – Technical Manual*, Canberra: AGPS.

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E.(2010). *Multivariate data Analysis. 7th Edition.* Pearson Presstice Hall.

Hair, J.F., Sarstedt, M., Ringle, C.M. & Mena, J.A.(2011). An assessment of the Use of Partial Least Square Structure Equation Modeling in Marketing Research. *Journal of the Academy of Marketing Science.*

Halawi, L. A., Aronson, J. E., & McCarthy, R. V. (2005). Resource-Based View of Knowledge Management for Competitive Advantage. *The Electronic Journal of Knowledge Management, 3(2),* 75-86.

Hamel, G. (1994). *The concept of core competence. In G. Hamel and A. Heene (eds.), Competence-Based Competition.* Chichester, UK: John Wiley & Sons, 11-33.

Hamiton , S. & Chervany, N. L. (1981). Evaluating Information System Effectiveness Part I: Comparing Evaluation Approaches. *MIS Quarterly, 5(3),* 5.

Hasan, A. (2008). IT Competency and firm performance: The role of Organizational Learning Capability in INDONESIAN Manufacturing firms. http://eprints.usm.my/9952/1/IT_COMPETENCY_AND_ FIRM_PERFORMANCE.pdf

Henderson, J.C., & Venkatraman, N. (1989). *Strategic Alignment: A Framework for Strategic Information Technology Management*. Center for Information System Research, Massachusetts.

Henderson, J.C., & Venkatraman, N. (1999). Strategic Alignment: Leveraging Information Technology for Transforming Organizations. *IBM Systems Journal* 38 (2/3), 472–484.

Hitt, M. A., Bierman, L., Shimizu, K., & Kochhar, R. (2001). Direct and Moderating Effects of Human capital, On Strategy and Performance in professional Service firms: A Resource-Based Perspective, Academy of Management Journal., 44(1), 13-28.

Ho, R. (2006). *Handbook of Univariate and Multivariate Data Analysis and Interpretation with SPSS*. Boca Raton, FL: Taylor and Francis Group.

Hoffmann, T. (1999). The Meaning of Competency. *Journal of European Industrial Training, 23(6),* 275-285.

Holsti, O.R. (1969). *Content analysis for the social sciences and humanities. Reading, MA* : Addison-Wesley Publishing Company.

Insights, A. (2009). Strategic Information Systems Knowledge- IST and Business Alignment. Acumen Insights, from http://www.acumen-insights.com

Institute of Chartered Accountants (1993), Measurement-The Total Picture, The Institute of Chartered Accounts of Scotland, from https://www.cranfield.ac.uk/about/people-and-resources/schools-institutes-research-centres/school-of management/departments/ijopm2010.pdf

Jarvenpaa, S. L., & Ives, B. (1991). Executive Involvement and Participation in the Management of Information Technology, *MIS Quarterly, 15(6),* 205-224.

Jarvenpaa, S. L., & Leidner, D. E. (1998). An Information Company in Maxico: Extending the Resource-Based View of the Firm to a Developing Country Context. *Information System Research, 9(4),* 342-361.

Jassapalo, C. (2010). *Information Technology Strategy and Business Strategy Alignment and Its Effects on Information Technology Effectiveness of Thai Business Organizations.* Ph.D., Dhurakij Pundit University, Thailand Bangkok.

Jöreskog, K. G. (1973). A General Method for Estimating a Linear Structural Equation System. In A. S. Goldberger & O. D. Duncan (Eds.), Structural equation models in the social sciences, 85–112, New York: Seminar.

Jubb, R., & Robotham, D. (1997). Competences in Management Development: Challenging the Myths. *Journal of European Industrial Training. 21(5)*. 171-175.

Kaplan, R.S. & Norton, D.P. (1992). The Balanced Scorecard: Measures that Drive Performance. *Harvard Business Review, Vol. 70*, 71-9.

Kaplan, R.S. & Norton, D.P. (1996). *The Balanced Scorecard: Translating Strategy into Action*. Boston. MA : Harvard Business School Press.

Kaplan, R. S. (2001). Strategic Performance Measurement and Management in Nonprofit Organizations. *Nonprofit Management & Leadership, Spring,11(3),* 353-369.

Kearns, G. S. & Lederer, A. L. (2001). *Strategic IT Alignment: A Model for Competitive Advantage.* Paper presented at the International Conference on Information Systems, 2001. ICIS 2001. International Conference.

Kearns, G. S. & Lederer, A. L. (2003). A Resource-Based View of Strategic IT Alignment: How Knowledge Sharing Creates Competitive Advantage. *Decision Sciences. 34(1),* Winter 2003.

Kerlinger, F.N. (1986). *Foundations of behavioral research* (3rd. ed.). Fort Worth, TX: Holt, Rinehart, and Winston.

King, A.W., W., S.F. & P, C.Z. (2001). Managing Organizational Competencies for Competitive Advantage: The Middle-Management Edge. *The Academy of Management Executive. volume 15,* 95-106.

Kline, R. B. (2003). *How to fool yourself (and others) with SEM*. Montreal: Concordia University.

Kohli, A. K., & Bernard, J. J. (1990). Market Orientation: The Construct, Research Proposition and Managerial Implications. *Journal of Marketing. 54(April),* 1-18.

Kor, Y. Y. & Mahoney, J. T. (2004). Edith Penrose's (1959) Contributions to The Resource-based View of Strategic Management**.** *Journal of Management Studies, 41(1),* 183-191.

Krippendorff, K. (2003). Content Analysis An Introduction to Its Methodology. (2nd. ed.). London: SAGE Publication, from http://pages.cmns.sfu.ca/danielahadi/files/2013/01/cmns_362_week_4_krippendorf_ch_2and4_required.pdf

Kroenke, D M. (2008). Experiencing MIS. Prentice-Hall, Upper Saddle River, NJ.

Lee, S. M. , Kim, K. , Paulson, P. & Park, H. (2008). Developing a socio-Technical framework for business-IT alignment" *Journal of Industrial Management & Data System, 108(9),* 1167-1181.

Lederer, A.L. & Mendelow, A.L. (1989a). Coordination of information systems plans with business plans. *Journal of Management Information Systems, 6* (2), 5-19.

Lederer, A.L. & Mendelow, A.L. (1989b). Information systems planning: Incentives for effective action. *Data Base,* 13-20.

Leidner, D. E., Lo, J. & Gonzalez, E. (2010). *An Empirical Investigation of IS Strategy and IS Contribution to Firm Performance.* Paper presented at the International Conference on Information Systems, 2010. ICIS 2010. International Conference.

Leonard-Barton, D. (1992). Core Capabilities and Core Rigidities : A paradox in Management New Product Development. *Strategic Management Journal, 13 (5),* 111-125.

Liang, T. P. & You, J.J. (2009). *Resource-Based View in Information Systems Research: A Meta-Analysis*. Paper presented at the Pacific Asia Conference on Information Systems, 2009. PACIS 2009. International Conference.

Lindow, C.M., Stubner, S., & Wulf, T. (2010). Strategic Fit within Family Firms: The Role of Family Influence and the Effect on Performance. *Journal of Family Business Strategy, 1,* 167-178.

Loehlin, J., C. (1992). *Latent Variable Analysis.* Hillsdale, NJ: Lawrence Erlbaum Associates Inc.

Lopes, A. B., & Galletta, D. (1997). *Resource-Based Theory and a Structural Perspective of Strategy Applied to the Provision of Internet Services.* Paper presented at the Third American Conference on Information Systems, Indianapolis, 1997. International Conference.

Lopez-Gamero, M. D., Molina-Azorın. J. F., & Claver-Cortes, E. (2009). The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables. *Journal of Environmental Management XXX.* 1-12.

Luftman, J. (2000). Assessing Business-IT Alignment Maturity. *Communication of the Association for Information Systems*, Volume 4, Article 14.

Magretta, J. (1998). The power of virtual integration: An interview with Dell Computer's Michael Dell. *Harvard Business Review, 76(2),* 72-83.

Maisel, L.S. (1992). Performance Measurement: the Balanced Scorecard Approach. *Journal of Cost Management, 6(2),* 47-52.

Majeed, S. (2011). The Impact of Competitive Advantage on Organizational Performance. *European Journal of Business and Management, 3(4),* 191-196.

Manly, B.F.J. (2005). Multivariate Statistical Methods: A primer, Third edition, Chapman and Hall.

Markides, C. (1997). Strategic Innovation. *Sloan Management Review,* 9-23.

Mata, F. J., Fuerst, W. L., & Barney, J. B. (1995). Information Technology and Sustained Competitive Advantage: A Resource-Based Analysis. *MIS Quarterly, 19(4).* 487-505.

McIntosh, A.R., & Lobaugh N.J. (2004). Partial Least Squares Analysis of Neuroimaging Data: *Applications and Advances. Neuroimage, 23,* 250-263.

Melville, N., Kraemer, K., & Gurbaxani, V. (2004). Information Technology and Organizational Performance : An Integrative Model Of IT Business Value. *MIS Quarterly, 28(2).* 283- 322.

Mithas, S., Ramasubbu, N., & Sambamurthy, V. (2011). How Information Management Capability Influences Firm Performance. *MIS Quarterly,35(1).* 237- 256.

Mojdeh, S. (2005), Technology-enabled Business Performance Management: Concept, Framework, and Technology. Presented paper at *3rd International Management Conference*.12-20.

Nash, E. M. (2006). *Assessing IT as a Driver or Enabler of Transformation in the Pharmaceutical Industry Employing the Strategic Alignment Maturity Model.* unpublished Ph.D., dissertation, Hoboken. Stevens Institute of Technology, Hoboken.

NIST. (2014). 2013-2014 Criteria for Performance Excellence. Baldrige National Quality Program 2014. NIST, from http://baldrige.nist.gov/

Oh, W., & Pinsonneault, A. (2007). On the Assessment of the Strategic Value of Information Technologies: Conceptual and Analytical Approaches. *MIS Quarterly, 31(2),* 239-265.

Ozkan, S., Hackney, R., & Bilgen, S. (2007). PB-ISAM: A Process Based Framework For Information Systems Effectiveness Assessment. *Journal of Enterprise Information Management, 20(6),* 700-725.

Parker, M. M. & Benson R. J. (1988). Information Economics: Linking Business to Information Technology, New Jersey: Prentice Hall.

Pearlson, K. E., & Saunders, C. S. (2009). *Strategic Management Information Systems* (Fourth Edition). Asia: John Wiley & Sons.

Penrose, E. (1959). *Theory of the Growth of the Firm*. New York: John Wiley & Sons.

Peteraf, M. A. (1993). The Cornerstones of Competitive Advantage: A Resource-Based View. *Strategic Management Journal,14(3),* 179-191.

Piriyakul, M. (2010). Partial Least Square Path Modeling (PLS Path Modeling). Paper Presented at the 11th Statistics and Applied Statistics Conference, Chang Mai, 27-28 May.

Pitruzzello, S. (2009). *The Strategic Value of IT Investments.* White paper, Engage Consulting Group PTY LTD.

Porter M. E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors.* New York: The Free Press.

Powell, T.C. & Dent-Micallef, A. (1997). Information Technology as Competitive Advantage: The Role of Human, Business, and Technology Resources. *Strategic Management Journal,18(5),*375-405.

Prahalad, C. K. & Hamel, G. (1990). The Core Competence of the Corporation. *Harvard Business Review, 86(3),* 79-92.

Prahalad, C.K., & Hamel, G. (1994). Strategy as a Field of Study: Why Search for a New Paradigm?. *Strategic Management Journal, 15,* 5-16.

Preston, D.S. & Karahanna, E. (2009). Antecedents of IS strategic alignment: A nomological network, *Information Systems Research, 20(2),* 159-179.

Raduan, C. R., U, J., A, H., & I, A. I. (2009). *A Conceptual Framework of the Relationship Between Organizational Resources Capabilities, Systems, Competitive Advantage and Performance*. Research Journal of International Studies. October, 12, 45-58.

Rashidirad, M., Syed, J., & Soltani, E. (2012). *The Strategic Alignment Between Competitive Strategy and Dynamic Capability and its Impact on E-Business Value*. IPEDR. 52, 116-120.

Ravichandran, T. & Lertwongsatien, C. (2005). Effect of Information Systems Resources and Capabilities on Firm Performance: A Resource-Based Perspective. *Journal of Management Information Systems / Spring, 21(4),* 237-276.

Ray, G., Barney, J. B., & Muhanna, W. A. (2004). Capabilities, Business Processes, and Competitive Advantage : Choosing the Dependent Variable in Empirical Tests of the Resource-Based View. *Strategic Management Journal, 25,* 23-37.

Reich, B.H. & Benbasat, I.(1996). Measuring the Linkage between Business and Information Technology Objectives. *MIS Quarterly, 20(1),* 55-81.

Reich, B.H. & Benbasat, I. (2000). Factors That Influence The Social Dimension of Alignment Between Business And Information Technology objectives. *MIS Quarterly, 24(1),* 81 -113.

Report of International Monetary Fund (IMF). Retrieved July 2014, from http://www.nesdb.go.th/Default.aspx?tabid=395

Rivard, S., Raymond, L., & Verreault, D. (2006). Resource-based view and competitive strategy: An integrated model of the contribution of information technology to firm performance. *Journal of Strategic Information Systems, 15*, 29-50.

Rose, R.C., Abdullah, H., & Ismad, A.I., (2010). A Review on the Relationship between Organizational Resources, Competitive Advantage and Performance. *The Journal of International Social Research, 3(11),* 488-498.

Rose, S., Spinks, N., & Canhoto, A. I. (2015). Management Research: Applying the Principles. Abingdon, Oxon : Routledge.

Ross, J.W.C., Beath, C.M. & Goodhue, D.L. (1996). Develop long-term Competitiveness through IT assets. *Sloan Management Review, Fall 1996,* 31-42.

Rothaermel, F. T. (2013). *Strategic Management. Concepts.* New York: McGraw-Hill.

Rovnelli, R. J., & Hambleton, R. K. (1977). On the Use of Content Specialists in the Assessment of Criterion Referenced Test Item Validity. *Dutch Journal for Educational Research, 2,* 49-60.

Rugman, A. M. & Verbeke, A. (2002). Edith Penrose's contribution to the resource-based view of strategic management. *Strategic Management Journal, 23(8),* 769–80.

Rumelt, R. (1994). *Forward in Competence-Based Competition, ed. By Gary Hamel and Aime Heene*. New York : Wiley & Sons.

Rutherford, P. (1995). *Competency Based Assessment*. Melbourne: Pitman.

Sabherwal, R. (1999). The relationship between information systems planning Sophistication and information system success: An empirical assessment. *Decision Sciences, 30(1),* Winter, 137-167.

Sabherwal, R. & Chan, Y. E. (2001). Alignment Between Business and IS Strategies: A Study of Prospectors,Analyzers, and Defenders. *Information Systems Research, 12(1),* 11-33.

Sambamurthy, V. & Zmud, R. (1999). Arrangements for Information Technology Governance: A Theory of Multiple Contingencies. *MIS Quarterly, 23(2),* 261 -290.

Santhanam, R. & Hartono, E. (2003). Issues in Linking Information Technology Capability to Firm Performance. *MIS Quarterly, 27 (1),* 125–153.

Sircar, S., Turnbow, J.L. & Bordoloi, B. (2000). A framework for Assessing the Relationship Between Information Technology Investments and Firm Performance. *Journal of Management Information Systems, 16(4),* 69-97.

Spicer, J. (2005). *Making Sense of Multivariate Data Analysis: An Intuitive Approach.* Thousand Oaks, CA: Sage.

Srivastava, S. C. (2005). Managing Core Competence of the Organization. *Executive Summary. VIKALPA, 30(4),* 49-63.

Sternberg, R., & Kolligian, Jr J. (1990). *Competence Considered*. New Haven, CT: Yale University Press.

Strassmann, P.A. (1998). What is Alignment? Alignment is The Delivery of the Required Results. Published in Cutter IT Journal, August 1998.

Strebler, M., Robinson, D., & Heron, P. (1997). *Getting the Best Out of Competencies.* Institute of Employment Studies Report 334, Brighton.

Subriadi, A. P., Hadiwidjojo, D., Djumahir, Rahayu, M., & Sarno, R. (2013). Information Technology Productivity Paradox: A Resource-Based View and Information Technology Strategic Alignment Perspective for Measuring Information Technology Contribution on Performance. *Journal of Theoretical and Applied Information Technology, 54(3),* 541-552.

Tallon, P. P. (2010). A Service Science Perspective on Strategic Choice, IT and Performance in U.S. Banking. *Journal of Management Information Systems, Spring 2010, 26(4),* 219-252.

Tallon, P.P., & Pinsonneault, A. (2011). Competing Perspectives on the Link between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model. *MIS Quarterly, 35(2),* 463-486.

Tarafdar, M. & Qrunfle, S (2009). IT-Business Alignment: A Two-Level Analysis. *Information Systems Management*, 26, 338–349.

Teece, D. T., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal 18(7)*, 509-533.

Teo, T.S.H. & Ang, J.S.K. (1999). Critical success factors in the alignment of IS plans with business plans. *International Journal of Information Management, 19*, 173- 185.

Teo, T.S.H. & King, W.R. (1997). Integration Between Business Planning and Information Systems Planning: a Contingency Perspective. *Journal of Management Information Systems, 14 (1),* 185–214.

Thailand Public Finance Management Review Report , May 10, 2012 , from http://finance.wharton.upenn.edu

Thailand Competitiveness Conference 2011. from http://www.tma.or.th/LinkClick.aspx?fileticket=82dwW9Sbyug%3D&tabid=149. Retrieved 3 September 2012.

Truijens, O. (2003). A Critical Review of the Resource-based View of the Firm. University of Amsterdam, Netherlands. *Sprouts: Working Papers on Information Systems,3(6), from* http://sprouts.aisnet.org/3-6

UKAIS. July,1999, from http://www.turningcourse.com/ukais/isdefn.pdf

Vanichbuncha K. (2013). Structural Equation Modeling (SEM) by AMOS. Bangkok: Samlada Publishing.

Vom Brocke, J. & Rosemann, M. (2010), *Handbook on Business Process Management: Strategic Alignment, Governance, People and Culture (International and books on Information Systems).* Berlin: Springer.

Von Krogh, G. & Roos, J. (1995). A Perspective on Knowledge, Competence and Strategy. *Personnel Review, 24(3),* 56-76.

Wade, M. & Hulland, J. (2004). Review: The Resource-Based View And Information Systems Research: Review, Extension, And Suggestions For Future Research. *MIS Quarterly, 28(1)* , 107-142.

Wagner, H.T., Beimborn, D., Franke, J., & Weitzel, T. (2006). *IT Business Alignment and IT Usage in Operational Processes: A Retail Banking Case.* Presented paper at the 39th Hawaii International Conference on System Sciences, 2006.

Wernerfelt, B.(1984). A Resource-Based view of the Firm. *Strategic Management Journal, 5(2),* 171-180.

Wold, H. (1966). Estimation of principal components and related models by iterative least squares. In P.R. Krishnaiaah (Ed.). *Multivariate Analysis*. (pp.391-420) New York: Academic Press, from ttps://www.ats.ucla.edu/stat/sas/library/pls.pdf

Wold, S. (2001). Personal memories of the early PLS development. *Chemometrics and Intelligent Laboratory Systems, 58*, 83–84.

Wolf, M., Beck, R. & Vykoukal. J. (2010). *An Integrated Perspective on IT Project Alignment in Highly Dynamic Environments – A Multi-Level Analysis.* Paper presented at the International Conference on Information Systems, 2010. ICIS 2010. International Conference.Wright, S. S. (1921). Correlation and causation. *Journal of Agricultural Research, 20,* 557–85.

Xiaoying, D., Qianqian, L., & Dezhi, Y. (2008). Business Performance, Business Strategy, and Information System Strategic Alignment: An Empirical Study an Chinese Firms. *Tsighua Science and Technology, 13(3),* 348-354.

Yamane, T. (1973). Statistics: An Introductory Analysis (3rd ed.) New York: Harper & Row.

Yayla, A. A., & Hu, Q.(2012). The Impact of IT-Business Strategic Alignment on Firm Performance in a Developing Country Setting: Exploring Moderating Roles of Environmental Uncertainty and Strategic Orientation. *European Journal of Information Systems, 21(4),* 373-387.

Yin, G. & Yang, B. (2011). The Construction of Firm's IT Capability and ITS Impact on IT Assimilation: An Empirical Investigation in China. *Service Science 2(2),* 11-20.

Zaheer, A. & Zaheer, S. (1997). Catching the Wave: Alertness, Responsiveness, and Market Influence in Global Electronic Networks. Management Science, 43(11), 1493-1509.

http://archive.ifla.org. (2013). The National Information Policy of Thailand, from http://archive.ifla.org/faife/report/thailand.htm

http://databank.worldbank. (2014). Gross Domestic Product 2014. from http://databank.worldbank.org/data/download/GDP.pdf

http://www.businessdictionary.com. Strategic Alignment, from http://www.businessdictionary.com/definition/alignment.html

http://www.mua.go.th.(2014). National Development Update Plan, from http://www.mua.go.th/users/bpp/developplan/index.htm

http://www.techopedia.com**.** (2014)**.** What is IT Infrastructure?**,** from http://www.techopedia.com/definition/29199/it-infrastructure

APPENDICES

APPENDIX A

Name of the Listing Organizations of the Stock Exchange of Thailand (SET)

Under the Supervision of Securities and Exchange Commission (SEC)

Appendix A : Name List of the Stock Exchange of Thailand :SET

No	Symbol	Company	Industry
1	2S	2S METAL PUBLIC COMPANY LIMITED	MAI Industrial
2	A	AREEYA PROPERTY PUBLIC COMPANY LIMITED	Property & Construction
3	AAV	ASIA AVIATION PUBLIC COMPANY LIMITED	Services
4	ABC	ASSET BRIGHT PUBLIC COMPANY LIMITED	Consumer Products
5	ABPIF	AMATA B. GRIMM POWER PLANT INFRASTRUCTURE FUND	Resources
6	ACAP	ACAP ADVISORY PUBLIC COMPANY LIMITED	MAI Industrial
7	ACD	ASIA CORPORATE DEVELOPMENT PUBLIC COMPANY LIMITED	Services
8	ADAM	ADAMAS INCORPORATION PUBLIC COMPANY LIMITED	MAI Industrial
9	ADVANC	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	Technology
10	AEC	AEC SECURITIES PUBLIC COMPANY LIMITED	Financials
11	AEONTS	AEON THANA SINSAP (THAILAND) PUBLIC COMPANY LIMITED	Financials
12	AF	AIRA FACTORING PUBLIC COMPANY LIMITED	MAI Industrial
13	AFC	ASIA FIBER PUBLIC COMPANY LIMITED	Consumer Products
14	AGE	ASIA GREEN ENERGY PUBLIC COMPANY LIMITED	MAI Industrial
15	AH	AAPICO HITECH PUBLIC COMPANY LIMITED	Industrials
16	AHC	AIKCHOL HOSPITAL PUBLIC COMPANY LIMITED	Services
17	AI	ASIAN INSULATORS PUBLIC COMPANY LIMITED	Resources
18	AIE	AI ENERGY PUBLIC COMPANY LIMITED	MAI Industrial
19	AIT	ADVANCED INFORMATION TECHNOLOGY PUBLIC CO.,LTD.	Technology
20	AJ	A.J. PLAST PUBLIC COMPANY LIMITED	Industrials
21	AJP	ASIA JOINT PANORAMA PUBLIC COMPANY LIMITED	MAI Industrial
22	AKP	AKKHIE PRAKARN PUBLIC COMPANY LIMITED	MAI Industrial
23	AKR	EKARAT ENGINEERING PUBLIC COMPANY LIMITED	Resources
24	ALUCON	ALUCON PUBLIC COMPANY LIMITED	Industrials
25	AMANAH	AMANAH LEASING PUBLIC COMPANY LIMITED	Financials
26	AMARIN	AMARIN PRINTING AND PUBLISHING PUBLIC COMPANY LIMITED	Services
27	AMATA	AMATA CORPORATION PUBLIC COMPANY LIMITED	Property & Construction
28	AMC	ASIA METAL PUBLIC COMPANY LIMITED	Industrials
29	ANAN	ANANDA DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
30	AOT	AIRPORTS OF THAILAND PUBLIC COMPANY LIMITED	Services
31	AP	AP (THAILAND) PUBLIC COMPANY LIMITED	Property & Construction
32	APCO	ASIAN PHYTOCEUTICALS PUBLIC COMPANY LIMITED	Consumer Products
33	APCS	ASIA PRECISION PUBLIC COMPANY LIMITED	Industrials
34	APURE	AGRIPURE HOLDINGS PUBLIC COMPANY LIMITED	Agro & Food Industry

Appendix A : Name List of the Stock Exchange of Thailand :SET (Continue)

No	Symbol	Company	Industry
35	AQUA	AQUA CORPORATION PUBLIC COMPANY LIMITED	Services
36	ARIP	ARIP PUBLIC COMPANY LIMITED	MAI Industrial
37	ARROW	ARROW SYNDICATE PUBLIC COMPANY LIMITED	MAI Industrial
38	AS	ASIASOFT CORPORATION PUBLIC COMPANY LIMITED	Services
39	ASCON	ASCON CONSTRUCTION PUBLIC COMPANY LIMITED	Property & Construction
40	ASIA	ASIA HOTEL PUBLIC COMPANY LIMITED	Services
41	ASIAN	ASIAN SEAFOODS COLDSTORAGE PUBLIC COMPANY LIMITED	Agro & Food Industry
42	ASIMAR	ASIAN MARINE SERVICES PUBLIC COMPANY LIMITED	Services
43	ASK	ASIA SERMKIJ LEASING PUBLIC COMPANY LIMITED	Financials
44	ASP	ASIA PLUS GROUP HOLDINGS SECURITIES PUBLIC COMPANY LIMITED	Financials
45	AUCT	UNION AUCTION PUBLIC COMPANY LIMITED	MAI Industrial
46	AYUD	SRI AYUDHYA CAPITAL PUBLIC COMPANY LIMITED	Financials
47	BAFS	BANGKOK AVIATION FUEL SERVICES PCL.	Resources
48	BANPU	BANPU PUBLIC COMPANY LIMITED	Resources
49	BAT-3K	THAI STORAGE BATTERY PUBLIC COMPANY LIMITED	Industrials
50	BAY	BANK OF AYUDHYA PUBLIC COMPANY LIMITED	Financials
51	BBL	BANGKOK BANK PUBLIC COMPANY LIMITED	Financials
52	BCH	BANGKOK CHAIN HOSPITAL PUBLIC COMPANY LIMITED	Services
53	BCP	THE BANGCHAK PETROLEUM PUBLIC COMPANY LIMITED	Resources
54	BEAUTY	BEAUTY COMMUNITY PUBLIC COMPANY LIMITED	Services
55	BEC	BEC WORLD PUBLIC COMPANY LIMITED	Services
56	BECL	BANGKOK EXPRESSWAY PUBLIC COMPANY LIMITED	Services
57	BFIT	BANGKOK FIRST INVESTMENT & TRUST PUBLIC CO.,LTD.	Financials
58	BGH	BANGKOK DUSIT MEDICAL SERVICE PUBLIC COMPANY LIMITED	Services
59	BGT	BGT CORPORATION PUBLIC COMPANY LIMITED	MAI Industrial
60	BH	BUMRUNGRAD HOSPITAL PUBLIC COMPANY LIMITED	Services
61	BIGC	BIG C SUPERCENTER PUBLIC COMPANY LIMITED	Services
62	BJC	BERLI JUCKER PUBLIC COMPANY LIMITED	Services
63	BJCHI	BJC HEAVY INDUSTRIES PUBLIC COMPANY LIMITED	Property & Construction
64	BKD	BANGKOK DEC-CON PUBLIC COMPANY LIMITED	MAI Industrial
65	BKI	BANGKOK INSURANCE PUBLIC COMPANY LIMITED	Financials
66	BKKCP	BANGKOK COMMERCIAL PROPERTY FUND	Property & Construction
67	BLA	BANGKOK LIFE ASSURANCE PUBLIC COMPANY LIMITED	Financials
68	BLAND	BANGKOK LAND PUBLIC COMPANY LIMITED	Property & Construction
69	BLISS	BLISS-TEL PUBLIC COMPANY LIMITED	Technology

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
70	BMCL	BANGKOK METRO PUBLIC COMPANY LIMITED	Services
71	BOL	BUSINESS ONLINE PUBLIC COMPANY LIMITED	Services
72	BROCK	BAAN ROCK GARDEN PUBLIC COMPANY LIMITED	Property & Construction
73	BROOK	THE BROOKER GROUP PUBLIC COMPANY LIMITED	Financials
74	BSBM	BANGSAPHAN BARMILL PUBLIC COMPANY LIMITED	Industrials
75	BSM	BUILDERSMART PUBLIC COMPANY LIMITED	MAI Industrial
76	BTC	BANGPAKONG TERMINAL PUBLIC COMPANY LIMITED	Services
77	BTNC	BOUTIQUE NEWCITY PUBLIC COMPANY LIMITED	Consumer Products
78	BTS	BTS GROUP HOLDINGS PUBLIC COMPANY LIMITED	Services
79	BTSGIF	BTS RAIL MASS TRANSIT GROWTH INFRASTRUCTURE FUND	Services
80	BUI	BANGKOK UNION INSURANCE PUBLIC COMPANY LIMITED	Financials
81	BWG	BETTER WORLD GREEN PUBLIC COMPANY LIMITED	Services
82	CAWOW	CALIFORNAI WOW EXPERIENCE) PUBLIC CO., LTD.	Services
83	CCET	CAL-COMP ELECTRONICS (THAILAND) PUBLIC CO., LTD.	Technology
84	CCP	CHONBURI CONCRETE PRODUCT PUBLIC COMPANY LIMITED	Property & Construction
85	CEI	COMPASS EAST INDUSTRY (THAILAND) PUBLIC COMPANY LIMITED	Consumer Products
86	CEN	CAPITAL ENGINEERING NETWORK PUBLIC COMPANY LIMITED	Industrials
87	CENTEL	CENTRAL PLAZA HOTEL PUBLIC COMPANY LIMITED	Services
88	CFRESH	SEAFRESH INDUSTRY PUBLIC COMPANY LIMITED	Agro & Food Industry
89	CGD	COUNTRY GROUP DEVELOPMENT PUBLIC COMPANY LIMITED	MAI Industrial
90	CGS	COUNTRY GROUP HOLDINGS PUBLIC COMPANY LIMITED	Financials
91	CHARAN	CHARAN INSURANCE PUBLIC COMPANY LIMITED	Financials
92	CHG	CHULARAT HOSPITAL PUBLIC COMPANY LIMITED	Services
93	CHO	CHO THAVEE DOLLASIEN PUBLIC COMPANY LIMITED	MAI Industrial
94	CHOTI	KIANG HUAT SEA GULL TRADING FROZEN FOOD PUBLIC CO., LTD.	Agro & Food Industry
95	CHOW	CHOW STEEL INDUSTRIES PUBLIC COMPANY LIMITED	MAI Industrial
96	CHUO	CHUO SENKO (THAILAND) PUBLIC COMPANY LIMITED	MAI Industrial
97	CI	CHARN ISSARA DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
98	CIG	C.I.GROUP PUBLIC COMPANY LIMITED	MAI Industrial
99	CIMBT	CIMB THAI BANK PUBLIC COMPANY LIMITED	Financials
100	CITY	CITY STEEL PUBLIC COMPANY LIMITED	Industrials
101	CK	CH. KARNCHANG PUBLIC COMPANY LIMITED	Property & Construction
102	CKP	CK POWER PUBLIC COMPANY LIMITED	Resources

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
103	CM	CHIANGMAI FROZEN FOODS PUBLIC COMPANY LIMITED	Agro & Food Industry
104	CMO	CMO PUBLIC COMPANY LIMITED	Services
105	CMR	CHIANG MAI RAM MEDICAL BUSINESS PUBLIC COMPANY LIMITED	Services
106	CNS	CAPITAL NOMURA SECURITIES PUBLIC COMPANY LIMITED	Financials
107	CNT	CHRISTIANI & NIELSEN (THAI) PUBLIC COMPANY LIMITED	Property & Construction
108	COLOR	SALEE COLOUR PUBLIC COMPANY LIMITED	Industrial
109	CPALL	CP ALL PUBLIC COMPANY LIMITED	Services
110	CPF	CHAROEN POKPHAND FOODS PUBLIC COMPANY LIMITED	Agro & Food Industry
111	CPH	CASTLE PEAK HOLDINGS PUBLIC COMPANY LIMITED	Consumer Products
112	CPI	CHUMPORN PALM OIL INDUSTRY PUBLIC COMPANY LIMITED	Agro & Food Industry
113	CPL	C.P.L. GROUP PUBLIC COMPANY LIMITED	Consumer Products
114	CPN	CENTRAL PATTANA PUBLIC COMPANY LIMITED	Property & Construction
115	CPNCG	CPN COMMERCIAL GROWTH LEASEHOLD PROPERTY FUND	Property & Construction
116	CPNRF	CPN RETAIL GROWTH LEASEHOLD PROPERTY FUND	Property & Construction
117	CPR	CPR GOMU INDUSTRIAL PUBLIC COMPANY LIMITED	Industrial
118	CPTGF	C.P. TOWER GROWTH LEASEHOLD PROPERTY FUND	Property & Construction
119	CRANE	CHU KAI PUBLIC COMPANY LIMITED	Industrials
120	CRYSTAL	CRYSTAL RETAIL GROWTH LEASEHOLD PROPERTY FUND	Property & Construction
121	CSC	CROWN SEAL PUBLIC COMPANY LIMITED	Industrials
122	CSL	CS LOXINFO PUBLIC COMPANY LIMITED	Technology
123	CSP	CSP STEEL CENTER PUBLIC COMPANY LIMITED	Industrials
124	CSR	CITY SPORTS AND RECREATION PUBLIC COMPANY LIMITED	Services
125	CSS	COMMUNICATION AND SYSTEM SOLUTION PUBLIC COMPANY LIMITED	Services
126	CTARAF	CENTARA HOTELS & RESORTS LEASEHOLD PROPERTY FUND	Property & Construction
127	CTW	CHAROONG THAI WIRE & CABLE PUBLIC COMPANY LIMITED	Industrials
128	CWT	CHAI WATANA TANNERY GROUP PUBLIC COMPANY LIMITED	Industrials
129	CYBER	CYBER PLANET INTERACTIVE PUBLIC COMPANY LIMITED	MAI Industrial
130	DCC	DYNASTY CERAMIC PUBLIC COMPANY LIMITED	Property & Construction
131	DCON	DCON PRODUCTS PUBLIC COMPANY LIMITED	Property & Construction

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
132	DELTA	DELTA ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED	Technology
133	DEMCO	DEMCO PUBLIC COMPANY LIMITED	Resources
134	DIMET	DIMET (SIAM) PUBLIC COMPANY LIMITED	Property & Construction
135	DNA	DNA 2002 PUBLIC COMPANY LIMITED	Services
136	DRACO	DRACO PCB PUBLIC COMPANY LIMITED	Technology
137	DRT	DIAMOND BUILDING PRODUCTS PUBLIC COMPANY LIMITED	Property & Construction
138	DSGT	DSG INTERNATIONAL (THAILAND) PUBLIC COMPANY LIMITED	Consumer Products
139	DTAC	TOTAL ACCESS COMMUNICATION PUBLIC COMPANY LIMITED	Technology
140	DTC	DUSIT THANI PUBLIC COMPANY LIMITED	Services
141	DTCI	D.T.C. INDUSTRIES PUBLIC COMPANY LIMITED	Consumer Products
142	DTCPF	DUSIT THANI FREEHOLD & LEASEHOLD PROPERTY FUND	Property & Construction
143	E	EVOLUTION CAPITAL PUBLIC COMPANY LIMITED	Agro & Food Industry
144	EA	ENERGY ABSOLUTE PUBLIC COMPANY LIMITED	Resources
145	EARTH	ENERGY EARTH PUBLIC COMPANY LIMITED	Resources
146	EASON	EASON PAINT PUBLIC COMPANY LIMITED	Industrials
147	EASTW	EASTERN WATER RESOURCES DEVELOPMENT AND MANAGEMENT PCL.	Resources
148	ECF	EAST COAST FURNITECH PUBLIC COMPANY LIMITED	Consumer Products
149	ECL	EASTERN COMMERCIAL LEASING PUBLIC COMPANY LIMITED	Financials
150	EE	ETERNAL ENERGY PUBLIC COMPANY LIMITED	Agro & Food Industry
151	EFORL	E FOR L AIM PUBLIC COMPANY LIMITED	Services
152	EGCO	ELECTRICITY GENERATING PUBLIC COMPANY LIMITED	Resources
153	EIC	ELECTRONICS INDUSTRY PUBLIC COMPANY LIMITED	Technology
154	EMC	EMC PUBLIC COMPANY LIMITED	Property & Construction
155	EPCO	EASTERN PRINTING PUBLIC COMPANY LIMITED	Services
156	ERW	THE ERAWAN GROUP PUBLIC COMPANY LIMITED	Services
157	ERWPF	ERAWAN HOTEL GROWTH PROPERTY FUND	Property & Construction
158	ESSO	ESSO (THAILAND) PUBLIC COMPANY LIMITED	Resources
159	ESTAR	EASTERN STAR REAL ESTATE PUBLIC COMPANY LIMITED	Property & Construction
160	EUREKA	EUREKA DESIGN PUBLIC COMPANY LIMITED	MAI Industrial
161	EVER	EVERLAND PUBLIC COMPANY LIMITED	Property & Construction
162	F&D	FOOD AND DRINKS PUBLIC COMPANY LIMITED	Agro & Food Industry

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
163	FANCY	FANCY WOOD INDUSTRIES PUBLIC COMPANY LIMITED	Consumer Products
164	FE	FAR EAST DDB PUBLIC COMPANY LIMITED	Services
165	FMT	FURUKAWA METAL (THAILAND) PUBLIC COMPANY LIMITED	Industrials
166	FNS	FINANSA PUBLIC COMPANY LIMITED	Financials
167	FOCUS	FOCUS DEVELOPMENT AND CONSTRUCTION PUBLIC COMPANY LIMITED	Property & Construction
168	FORTH	FORTH CORPORATION PUBLIC COMPANY LIMITED	Technology
169	FPI	FORTUNE PARTS INDUSTRY PUBLIC COMPANY LIMITED	Industrial
170	FSS	FINANSIA SYRUS SECURITIES PUBLIC COMPANY LIMITED	Financials
171	FUTUREPF	FUTURE PARK LEASEHOLD PROPERTY FUND	Property & Construction
172	FVC	FILTER VISION PUBLIC COMPANY LIMITED	Services
173	GBX	GLOBLEX HOLDING MANAGEMENT PUBLIC COMPANY LIMITED	Financials
174	GC	GLOBAL CONNECTIONS PUBLIC COMPANY LIMITED	Industrials
175	GCAP	G CAPITAL PUBLIC COMPANY LIMITED	Financials
176	GEN	GENERAL ENGINEERING PUBLIC COMPANY LIMITED	Property & Construction
177	GENCO	GENERAL ENVIRONMENT CONSERVATION PUBLIC COMPANY LIMITED	Services
178	GFM	GOLD FINE MANUFACTURING PUBLIC COMPANY LIMITED	MAI Industry
179	GFPT	GFPT PUBLIC COMPANY LIMITED	Agro & Food Industry
180	GJS	G J STEEL PUBLIC COMPANY LIMITED	Industrials
181	GL	GROUP LEASE PUBLIC COMPANY LIMITED	Financials
182	GLAND	GRAND CANAL LAND PUBLIC COMPANY LIMITED	Property & Construction
183	GLOBAL	SIAM GLOBAL HOUSE PUBLIC COMPANY LIMITED	Services
184	GLOW	GLOW ENERGY PUBLIC COMPANY LIMITED	Resources
185	GOLD	GOLDEN LAND PROPERTY DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
186	GOLDPF	GOLD PROPERTY FUND (LEASE HOLD)	Property & Construction
187	GRAMMY	GMM GRAMMY PUBLIC COMPANY LIMITED	Services
188	GRAND	GRANDE ASSET HOTELS AND PROPERTY PUBLIC COMPANY LIMITED	Services
189	GSTEL	G STEEL PUBLIC COMPANY LIMITED	Industrials
190	GUNKUL	GUNKUL ENGINEERING PUBLIC COMPANY LIMITED	Resources
191	GYT	GOODYEAR (THAILAND) PUBLIC COMPANY LIMITED	Industrials
192	HANA	HANA MICROELECTRONICS PUBLIC COMPANY LIMITED	Technology
193	HEMRAJ	HEMARAJ LAND AND DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
194	HFT	HWA FONG RUBBER (THAILAND) PUBLIC COMPANY LIMITED	Industrials
195	HMPRO	HOME PRODUCT CENTER PUBLIC COMPANY LIMITED	Services
196	HOTPOT	HOT POT PUBLIC COMPANY LIMITED	Agro & Food Industry
197	HPF	HEMARAJ INDUSTRIAL PROPERTY AND LEASEHOLD FUND	Property & Construction
198	HTC	HAAD THIP PUBLIC COMPANY LIMITED	Agro & Food Industry
199	HTECH	HALCYON TECHNOLOGY PUBLIC COMPANY LIMITED	Industrial
200	HYDRO	HYDROTEK PUBLIC COMPANY LIMITED	Property & Construction
201	ICC	I.C.C. INTERNATIONAL PUBLIC COMPANY LIMITED	Consumer Products
202	IEC	THE INTERNATIONAL ENGINEERING PUBLIC COMPANY LIMITED	Technology
203	IFEC	INTER FAR EAST ENGINEERING PUBLIC COMPANY LIMITED	Consumer Products
204	IFS	IFS CAPITAL (THAILAND) PUBLIC COMPANY LIMITED	Financials
205	IHL	INTERHIDES PUBLIC COMPANY LIMITED	Industrials
206	ILINK	INTERLINK COMMUNICATION PUBLIC COMPANY LIMITED	Technology
207	INET	INTERNET THAILAND PUBLIC COMPANY LIMITED	Technology
208	INOX	POSCO-THAINOX PUBLIC COMPANY LIMITED	Industrials
209	INSURE	INDARA INSURANCE PUBLIC COMPANY LIMITED	Financials
210	INTUCH	INTOUCH HOLDINGS PUBLIC COMPANY LIMITED	Technology
211	IRC	INOUE RUBBER (THAILAND) PUBLIC COMPANY LIMITED	Industrials
212	IRCP	INTERNATIONAL RESEARCH CORPORATION PUBLIC CO., LTD.	Technology
213	IRPC	IRPC PUBLIC COMPANY LIMITED	Resources
214	IT	IT CITY PUBLIC COMPANY LIMITED	Services
215	ITD	ITALIAN-THAI DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
216	IVL	INDORAMA VENTURES PUBLIC COMPANY LIMITED	Industrials
217	JAS	JASMINE INTERNATIONAL PUBLIC COMPANY LIMITED	Technology
218	JCP	JC LEASEHOLD PROPERTY FUND	Property & Construction
219	JCT	JACK CHIA INDUSTRIES (THAILAND) PUBLIC COMPANY LIMITED	Consumer Products
220	JMART	JAY MART PUBLIC COMPANY LIMITED	Technology
221	JMT	JMT NETWORK SERVICES PUBLIC COMPANY LIMITED	Financials
222	JTS	JASMINE TELECOM SYSTEMS PUBLIC COMPANY LIMITED	Technology
223	JUBILE	JUBILEE ENTERPRISE PUBLIC COMPANY LIMITED	Consumer Products
224	JUTHA	JUTHA MARITIME PUBLIC COMPANY LIMITED	Services
225	KAMART	KARMARTS PUBLIC COMPANY LIMITED	Services

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
226	KASET	THAI HA PUBLIC COMPANY LIMITED	Agro & Food Industry
227	KBANK	KASIKORNBANK PUBLIC COMPANY LIMITED	Financials
228	KBS	KHONBURI SUGAR PUBLIC COMPANY LIMITED	Agro & Food Industry
229	KC	K.C. PROPERTY PUBLIC COMPANY LIMITED	Property & Construction
230	KCAR	KRUNGTHAI CAR RENT AND LEASE PUBLIC COMPANY LIMITED	Financials
231	KCE	KCE ELECTRONICS PUBLIC COMPANY LIMITED	Technology
232	KDH	THONBURI MEDICAL CENTRE PUBLIC COMPANY LIMITED	Services
233	KGI	KGI SECURITIES (THAILAND) PUBLIC COMPANY LIMITED	Financials
234	KIAT	KIATTANA TRANSPORT PUBLIC COMPANY LIMITED	Services
235	KKC	KULTHORN KIRBY PUBLIC COMPANY LIMITED	Industrials
236	KKP	KIATNAKIN BANK PUBLIC COMPANY LIMITED	Financials
237	KMC	KIDSADA MAHANAKORN PUBLIC COMPANY LIMITED	Property & Construction
238	KPNPF	KPN PROPERTY FUND	Property & Construction
239	KSL	KHON KAEN SUGAR INDUSTRY PUBLIC COMPANY LIMITED	Agro & Food Industry
240	KTB	KRUNG THAI BANK PUBLIC COMPANY LIMITED	Financials
241	KTC	KRUNGTHAI CARD PUBLIC COMPANY LIMITED	Financials
242	KTP	KEPPEL THAI PROPERTIES PUBLIC COMPANY LIMITED	Property & Construction
243	KWC	KRUNGDHEP SOPHON PUBLIC COMPANY LIMITED	Services
244	KYE	KANG YONG ELECTRIC PUBLIC COMPANY LIMITED	Consumer Products
245	L&E	LIGHTING & EQUIPMENT PUBLIC COMPANY LIMITED	Consumer Products
246	LALIN	LALIN PROPERTY PUBLIC COMPANY LIMITED	Property & Construction
247	LANNA	THE LANNA RESOURCES PUBLIC COMPANY LIMITED	Resources
248	LEE	LEE FEED MILL PUBLIC COMPANY LIMITED	Agro & Food Industry
249	LH	LAND AND HOUSES PUBLIC COMPANY LIMITED	Property & Construction
250	LHBANK	LH FINANCIAL GROUP PUBLIC COMPANY LIMITED	Financials
251	LHK	LOHAKIT METAL PUBLIC COMPANY LIMITED	Industrials
252	LHPF	LAND AND HOUSES FREEHOLD AND LEASEHOLD PROPERTY FUND	Property & Construction
253	LIVE	LIVE INCORPORATION PUBLIC COMPANY LIMITED	Services
254	LOXLEY	LOXLEY PUBLIC COMPANY LIMITED	Services
255	LPN	L.P.N. DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
256	LRH	LAGUNA RESORTS & HOTELS PUBLIC COMPANY LIMITED	Services

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
257	LST	LAM SOON (THAILAND) PUBLIC COMPANY LIMITED	Agro & Food Industry
258	LTX	LUCKYTEX (THAILAND) PUBLIC COMPANY LIMITED	Consumer Products
259	LUXF	LUXURY REAL ESTATE INVESTMENT FUND	Property & Construction
260	LVT	L.V. TECHNOLOGY PUBLIC COMPANY LIMITED	Industrial
261	M	MK RESTAURANT GROUP PUBLIC COMPANY LIMITED	Agro & Food Industry
262	M-AAA	MFC AMAZING A-LA ANDAMAN PROPERTY FUND	Property & Construction
263	MACO	MASTER AD PUBLIC COMPANY LIMITED	Services
264	MAJOR	MAJOR CINEPLEX GROUP PUBLIC COMPANY LIMITED	Services
265	MAKRO	SIAM MAKRO PUBLIC COMPANY LIMITED	Services
266	MALEE	MALEE SAMPRAN PUBLIC COMPANY LIMITED	Agro & Food Industry
267	MANRIN	THE MANDARIN HOTEL PUBLIC COMPANY LIMITED	Services
268	MATCH	MATCHING MAXIMIZE SOLUTION PUBLIC COMPANY LIMITED	Services
269	MATI	MATICHON PUBLIC COMPANY LIMITED	Services
270	MAX	MAX METAL CORPORATION PUBLIC COMPANY LIMITED	Industrials
271	MBAX	MULTIBAX PUBLIC COMPANY LIMITED	Industrial
272	MBK	MBK PUBLIC COMPANY LIMITED	Property & 284Construction
273	MBKET	MAYBANK KIM ENG SECURITIES (THAILAND) PUBLIC COMPANY LIMITED	Financials
274	MC	MC GROUP PUBLIC COMPANY LIMITED	Services
275	M-CHAI	MAHACHAI HOSPITAL PUBLIC COMPANY LIMITED	Services
276	MCOT	MCOT PUBLIC COMPANY LIMITED	Services
277	MCS	M.C.S.STEEL PUBLIC COMPANY LIMITED	Industrials
278	MDX	M.D.X. PUBLIC COMPANY LIMITED	Resources
279	MEGA	MEGA LIFESCIENCES PUBLIC COMPANY LIMITED	Services
280	METCO	MURAMOTO ELECTRON (THAILAND) PUBLIC COMPANY LIMITED	Technology
281	MFC	MFC ASSET MANAGEMENT PUBLIC COMPANY LIMITED	Financials
282	MFEC	MFEC PUBLIC COMPANY LIMITED	Technology
283	MIDA	MIDA ASSETS PUBLIC COMPANY LIMITED	Services
284	M-II	MFC INDUSTRIAL INVESTMENT PROPERTY AND LEASEHOLD FUND	Property & Construction
285	MILL	MILLCON STEEL PUBLIC COMPANY LIMITED	Industrials
286	MINT	MINOR INTERNATIONAL PUBLIC COMPANY LIMITED	Agro & Food Industry
287	MIPF	MILLIONAIRE PROPERTY FUND	Property & Construction
288	MJD	MAJOR DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
289	MJLF	MAJOR CINEPLEX LIFESTYLE LEASEHOLD PROPERTY FUND	Property & Construction
290	MK	M.K. REAL ESTATE DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
291	ML	MIDA LEASING PUBLIC CO., LTD.	Financials
292	MLINK	M LINK ASIA CORPORATION PUBLIC CO., LTD.	Technology
293	MNIT	MFC-NICHADA THANI PROPERTY FUND	Property & Construction
294	MNIT2	NICHADA THANI PROPERTY FUND 2	Property & Construction
295	MNRF	MULTI-NATIONAL RESIDENCE FUND	Property & Construction
296	MODERN	MODERNFORM GROUP PUBLIC COMPANY LIMITED	Consumer Products
297	MONO	MONO TECHNOLOGY PUBLIC COMPANY LIMITED	Services
298	MONTRI	101 MONTRI STORAGE PROPERTY FUND	Property & Construction
299	MOONG	MOONG PATTANA INTERNATIONAL PUBLIC COMPANY LIMITED	Consumer Products
300	MPG	MANGPONG 1989 PUBLIC COMPANY LIMITED	Services
301	MPIC	M PICTURES ENTERTAINMENT PUBLIC COMPANY LIMITED	Services
302	MSC	METRO SYSTEMS CORPORATION PUBLIC COMPANY LIMITED	Technology
303	MSPF	MERCURE SAMUI STORAGE PROPERTY FUND	Property & Construction
304	M-STOR	MFC-STRATEGIC STORAGE FUND	Property & Construction
305	MTI	MUANG THAI INSURANCE PUBLIC COMPANY LIMITED	Financials
306	NBC	NATION BROADCASTING CORPORATION PUBLIC COMPANY LIMITED	Services
307	NC	NEWCITY (BANGKOK) PUBLIC COMPANY LIMITED	Consumer Products
308	NCH	N. C. HOUSING PUBLIC COMPANY LIMITED	Property & Construction
309	NEP	NEP REALTY AND INDUSTRY PUBLIC COMPANY LIMITED	Industrials
310	NEW	WATTANA KARNPAET PUBLIC COMPANY LIMITED	Services
311	NINE	NATION INTERNATIONAL EDUTAINMENT PUBLIC COMPANY LIMITED	Services
312	NIPPON	NIPPON PACK (THAILAND) PUBLIC COMPANY LTD.	Industrials
313	NKI	THE NAVAKIJ INSURANCE PUBLIC COMPANY LIMITED	Financials
314	NMG	NATION MULTIMEDIA GROUP PUBLIC COMPANY LIMITED	Services
315	NNCL	NAVANAKORN PUBLIC COMPANY LIMITED	Property & Construction
316	NOBLE	NOBLE DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
317	NOK	NOK AIRLINES PUBLIC COMPANY LIMITED	Services

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
318	N-PARK	NATURAL PARK PUBLIC COMPANY LIMITED	Property & Construction
319	NPK	NEW PLUS KNITTING PUBLIC COMPANY LIMITED	Consumer Products
320	NSI	NAM SENG INSURANCE PUBLIC COMPANY LIMITED	Financials
321	NTV	NONTHAVEJ HOSPITAL PUBLIC COMPANY LIMITED	Services
322	NUSA	NUSASIRI PUBLIC COMPANY LIMITED	Property & Construction
323	NWR	NAWARAT PATANAKARN PUBLIC COMPANY LIMITED	Property & Construction
324	NYT	NAMYONG TERMINAL PUBLIC COMPANY LIMITED	Services
325	OCC	O.C.C. PUBLIC COMPANY LIMITED	Consumer Products
326	OCEAN	OCEAN COMMERCE PUBLIC COMPANY LIMITED	Consumer Products
327	OFM	OFFICE MATE PUBLIC COMPANY LIMITED	Service
328	OGC	OCEAN GLASS PUBLIC COMPANY LIMITED	Consumer Products
329	OHTL	OHTL PUBLIC COMPANY LIMITED	Services
330	OISHI	OISHI GROUP PUBLIC COMPANY LIMITED	Agro & Food Industry
331	PACE	PACE DEVELOPMENT CORPORATION PUBLIC COMPANY LIMITED	Property & Construction
332	PAE	PAE (THAILAND) PUBLIC COMPANY LIMITED	Property & Construction
333	PAF	PAN ASIA FOOTWEAR PUBLIC COMPANY LIMITED	Consumer Products
334	PAP	PACIFIC PIPE PUBLIC COMPANY LIMITED	Industrials
335	PATKL	PATTANAKON PUBLIC COMPANY LIMITED	Industrials
336	PATO	PATO CHEMICAL INDUSTRY PUBLIC COMPANY LIMITED	Industrials
337	PB	PRESIDENT BAKERY PUBLIC COMPANY LIMITED	Agro & Food Industry
338	PDI	PADAENG INDUSTRY PUBLIC COMPANY LIMITED	Resources
339	PE	PREMIER ENTERPRISE PUBLIC COMPANY LIMITED	Financials
340	PERM	PERMSIN STEEL WORKS PUBLIC COMPANY LIMITED	Industrials
341	PF	PROPERTY PERFECT PUBLIC COMPANY LIMITED	Property & Construction
342	P-FCB	PRAKIT HOLDING PERFECT PUBLIC COMPANY LIMITED	Services
343	PG	PEOPLE'S GARMENT PUBLIC COMPANY LIMITED	Consumer Products
344	PHOL	PHOL DHANYA PUBLIC COMPANY LIMITED	Services
345	PICO	PICO THAILAND PUBLIC COMPANY LIMITED	Services
346	PJW	PANJAWATTANA PLASTIC PUBLIC COMPANY LIMITED	Industrial
347	PL	PHATRA LEASING PUBLIC COMPANY LIMITED	Financials
348	PLE	POWER LINE ENGINEERING PUBLIC COMPANY LIMITED	Property & Construction
349	PM	PREMIER MARKETING PUBLIC COMPANY LIMITED	Agro & Food Industry
350	POPF	PRIME OFFICE LEASEHOLD PROPERTY FUND	Property & Construction

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
351	POST	THE POST PUBLISHING PUBLIC COMPANY LIMITED	Services
352	PPM	PORN PROM METAL PUBLIC COMPANY LIMITED	Industrial
353	PPP	PREMIER PRODUCTS PUBLIC COMPANY LIMITED	Property & Construction
354	PPS	PROJECT PLANNING SERVICE PUBLIC COMPANY LIMITED	Property & Construction
355	PR	PRESIDENT RICE PRODUCTS PUBLIC COMPANY LIMITED	Agro & Food Industry
356	PRANDA	PRANDA JEWELRY PUBLIC COMPANY LIMITED	Consumer Products
357	PREB	PRE-BUILT PUBLIC COMPANY LIMITED	Property & Construction
358	PRECHA	PREECHA GROUP PUBLIC COMPANY LIMITED	Property & Construction
359	PRG	PATUM RICE MILL AND GRANARY PUBLIC COMPANY LIMTED	Agro & Food Industry
360	PRIN	PRINSIRI PUBLIC COMPANY LIMITED	Property & Construction
361	PRINC	PRINCIPAL CAPITAL PUBLIC COMPANY LIMITED	Property & Construction
362	PRO	PROFESSIONAL WASTE TECHNOLOGY (1999) PUBLIC COMPANY LIMITED	Services
363	PS	PRUKSA REAL ESTATE PUBLIC COMPANY LIMITED	Property & Construction
364	PSL	PRECIOUS SHIPPING PUBLIC COMPANY LIMITED	Services
365	PT	PREMIER TECHNOLOGY PUBLIC COMPANY LIMITED	Technology
366	PTG	PTG ENERGY PUBLIC COMPANY LIMITED	Resources
367	PTL	POLYPLEX (THAILAND) PUBLIC COMPANY LIMITED	Industrials
368	PTT	PTT PUBLIC COMPANY LIMITED	Resources
369	PTTEP	PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	Resources
370	PTTGC	PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED	Industrials
371	PYLON	PYLON PUBLIC COMPANY LIMITED	Property & Construction
372	Q-CON	QUALITY CONSTRUCTION PRODUCTS PUBLIC COMPANY LIMITED	Property & Construction
373	QH	QUALITY HOUSES PUBLIC COMPANY LIMITED	Property & Construction
374	QHHR	QUALITY HOUSES HOTEL AND RESIDENCE FREEHOLD AND LEASEHOLD PROPERTY FUND	Property & Construction
375	QHOP	QUALITY HOSPITALITY LEASEHOLD PROPERTY FUND	Property & Construction
376	QHPF	QUALITY HOUSES LEASEHOLD PROPERTY FUND	Property & Construction
377	QLT	QUALITECH PUBLIC COMPANY LIMITED	Services
378	QTC	QTC ENERGY PUBLIC COMPANY LIMITED	Resources
379	RAM	RAMKHAMHAENG HOSPITAL PUBLIC COMPANY LIMITED	Services
380	RASA	RASA PROPERTY DEVELOPMENT PUBLIC CO.,LTD.	Property & Construction

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
381	RATCH	RATCHABURI ELECTRICITY GENERATING HOLDING PUBLIC CO.,LTD.	Resources
382	RCI	THE ROYAL CERAMIC INDUSTRY PUBLIC COMPANY LIMITED	Property & Construction
383	RCL	REGIONAL CONTAINER LINES PUBLIC COMPANY LIMITED	Services
384	RICH	RICH ASIA STEEL PUBLIC COMPANY LIMITED	Industrials
385	RML	RAIMON LAND PUBLIC COMPANY LIMITED	Property & Construction
386	ROBINS	ROBINSON DEPARTMENT STORE PUBLIC COMPANY LIMITED	Services
387	ROCK	ROCKWORTH PUBLIC COMPANY LIMITED	Consumer Products
388	ROH	ROYAL ORCHID HOTEL (THAILAND) PUBLIC COMPANY LIMITED	Services
389	ROJNA	ROJANA INDUSTRIAL PARK PUBLIC COMPANY LIMITED	Property & Construction
390	RPC	RPCG PUBLIC COMPANY LIMITED	Resources
391	RS	RS PUBLIC COMPANY LIMITED	Services
392	S & J	S & J INTERNATIONAL ENTERPRISES PUBLIC COMPANY LIMITED	Consumer Products
393	SABINA	SABINA PUBLIC COMPANY LIMITED	Consumer Products
394	SALEE	SALEE INDUSTRY PUBLIC COMPANY LIMITED	Industrial
395	SAM	SAMCHAI STEEL INDUSTRIES PUBLIC COMPANY LIMITED	Industrials
396	SAMART	SAMART CORPORATION PUBLIC COMPANY LIMITED	Technology
397	SAMCO	SAMMAKORN PUBLIC COMPANY LIMITED	Property & Construction
398	SAMTEL	SAMART TELCOMS PUBLIC COMPANY LIMITED	Technology
399	SANKO	SANKO DIECASTING (THAILAND) PUBLIC COMPANY LIMITED	Industrial
400	SAT	SOMBOON ADVANCE TECHNOLOGY PUBLIC COMPANY LIMITED	Industrials
401	SAUCE	THAITHEPAROS PUBLIC COMPANY LIMITED	Agro & Food Industry
402	SAWANG	SAWANG EXPORT PUBLIC COMPANY LIMITED	Consumer Products
403	SC	SC ASSET CORPORATION PUBLIC COMPANY LIMITED	Property & Construction
404	SCAN	SCAN GLOBAL PUBLIC COMPANY LIMITED	Property & Construction
405	SCB	THE SIAM COMMERCIAL BANK PUBLIC COMPANY LIMITED	Financials
406	SCBLIF	SIAM COMMERCIAL LIFE INSURANCE PUBLIC COMPANY LIMITED	Financials
407	SCC	THE SIAM CEMENT PUBLIC COMPANY LIMITED	Property & Construction
408	SCCC	SIAM CITY CEMENT PUBLIC COMPANY LIMITED	Property & Construction
409	SCG	SAHACOGEN (CHONBURI) PUBLIC COMPANY LIMITED	Resources

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
410	SCP	SOUTHERN CONCRETE PILE PUBLIC COMPANY LIMITED	Property & Construction
411	SCSMG	SIAM COMMERCIAL SAMUKKEE INSURANCE PUBLIC COMPANY LIMITED	Financials
412	SEAFCO	SEAFCO PUBLIC COMPANY LIMITED	Property & Construction
413	SEAOIL	SEA OIL PUBLIC COMPANY LIMITED	Resources
414	SECC	S.E.C. AUTO SALES AND SERVICES PUBLIC COMPANY LIMITED	Industrials
415	SE-ED	SE-EDUCATION PUBLIC COMPANY LIMITED	Services
416	SENA	SENADEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
417	SF	SIAM FUTURE DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
418	SFP	SIAM FOOD PRODUCTS PUBLIC COMPANY LIMITED	Agro & Food Industry
419	SGP	SIAMGAS AND PETROCHEMICALS PUBLIC COMPANY LIMITED	Resources
420	SHANG	SHANGRI-LA HOTEL PUBLIC COMPANY LIMITED	Services
421	SIAM	SIAM STEEL INTERNATIONAL PUBLIC COMPANY LIMITED	Consumer Products
422	SIM	SAMART I-MOBILE PUBLIC COMPANY LIMITED	Technology
423	SIMAT	SIMAT TECHNOLOGIES PUBLIC COMPANY LIMITED	Technology
424	SINGER	SINGER THAILAND PUBLIC COMPANY LIMITED	Services
425	SINGHA	SINGHA PARATECH PUBLIC COMPANY LIMITED	Property & Construction
426	SIRI	SANSIRI PUBLIC COMPANY LIMITED	Property & Construction
427	SIS	SIS DISTRIBUTION (THAILAND) PUBLIC COMPANY LIMITED	Technology
428	SITHAI	SRITHAI SUPERWARE PUBLIC COMPANY LIMITED	Consumer Products
429	SKR	SIKARIN PUBLIC COMPANY LIMITED	Services
430	SLC	SOLUTION CORNER (1998) PUBLIC COMPANY LIMITED	Industrials
431	SMC	SMC POWER PUBLIC COMPANY LIMITED	MAI Industry
432	SMIT	SAHAMIT MACHINERY PUBLIC COMPANY LIMITED	Industrials
433	SMK	SYN MUN KONG INSURANCE PUBLIC COMPANY LIMITED	Financials
434	SMM	SIAM INTER MULTIMEDIA PUBLIC COMPANY LIMITED	Services
435	SMPC	SAHAMITR PRESSURE CONTAINER PUBLIC COMPANY LIMITED	Industrials
436	SMT	STARS MICROELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED	Technology
437	SNC	SNC FORMER PUBLIC COMPANY LIMITED	Industrials
438	SNP	S & P SYNDICATE PUBLIC COMPANY LIMITED	Agro & Food Industry
439	SOLAR	SOLARTRON PUBLIC COMPANY LIMITED	Resources

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
440	SORKON	S. KHONKAEN FOODS PUBLIC COMPANY LIMITED	Agro & Food Industry
441	SPACK	S. PACK & PRINT PUBLIC COMPANY LIMITED	Industrials
442	SPALI	SUPALAI PUBLIC COMPANY LIMITED	Property & Construction
443	SPC	SAHA PATHANAPIBUL PUBLIC COMPANY LIMITED	Services
444	SPCG	SPCG PUBLIC COMPANY LIMITED	Resources
445	SPF	SAMUI AIRPORT PROPERTY FUND (LEASEHOLD)	Property & Construction
446	SPG	THE SIAM PAN GROUP PUBLIC COMPANY LIMITED	Industrials
447	SPI	SAHA PATHANA INTER-HOLDING PUBLIC COMPANY LIMITED	Services
448	SPORT	SIAM SPORT SYNDICATE PUBLIC COMPANY LIMITED	Services
449	SPPT	SINGLE POINT PARTS (THAILAND) PUBLIC COMPANY LIMITED	Technology
450	SPVI	S P V I PUBLIC COMPANY LIMITED	Technology
451	SPWPF	SRI PANWA HOTEL PROPERTY FUND	Property & Construction
452	SRICHA	SRIRACHA CONSTRUCTION PUBLIC COMPANY LIMITED	Property & Construction
453	SSC	SERMSUK PUBLIC COMPANY LIMITED	Agro & Food Industry
454	SSF	SURAPON FOODS PUBLIC COMPANY LIMITED	Agro & Food Industry
455	SSI	SAHAVIRIYA STEEL INDUSTRIES PUBLIC COMPANY LIMITED	Industrials
456	SSPF	SALA @ SATHORN PROPERTY FUND	Property & Construction
457	SSSC	SIAM STEEL SERVICE CENTER PUBLIC COMPANY LIMITED	Industrials
458	SST	SUB SRI THAI PUBLIC COMPANY LIMITED	Agro & Food Industry
459	SSTPF	SUB SRI THAI PROPERTY FUND	Property & Construction
460	STA	SRI TRANG AGRO-INDUSTRY PUBLIC COMPANY LIMITED	Agro & Food Industry
461	STANLY	THAI STANLEY ELECTRIC PUBLIC COMPANY LIMITED	Industrials
462	STAR	STAR SANITARYWARE PUBLIC COMPANY LIMITED	Property & Construction
463	STEC	SINO-THAI ENGINEERING AND CONSTRUCTION PUBLIC CO.,LTD.	Property & Construction
464	STHAI	SHUN THAI RUBBER GLOVES INDUSTRY PUBLIC CO., LTD	Consumer Products
465	STPI	STP&I PUBLIC COMPANY LIMITED	Property & Construction
466	SUC	SAHA-UNION PUBLIC COMPANY LIMITED	Consumer Products
467	SUPER	SUPERBLOCK PUBLIC COMPANY LIMITED	Property & Construction
468	SUSCO	SUSCO PUBLIC COMPANY LIMITED	Resources

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
469	SVH	SAMITIVEJ PUBLIC COMPANY LIMITED	Services
470	SVI	SVI PUBLIC COMPANY LIMITED	Technology
471	SVOA	SVOA PUBLIC COMPANY LIMITED	Technology
472	SWC	SHERWOOD CHEMICALS PUBLIC COMPANY LIMITED	Industrial
473	SYMC	SYMPHONY COMMUNICATION PUBLIC COMPANY LIMITED	Technology
474	SYNEX	SYNNEX (THAILAND) PUBLIC COMPANY LIMITED	Technology
475	SYNTEC	SYNTEC CONSTRUCTION PUBLIC COMPANY LIMITED	Property & Construction
476	TAPAC	TAPACO PUBLIC COMPANY LIMITED	Industrial
477	TASCO	TIPCO ASPHALT PUBLIC COMPANY LIMITED	Property & Construction
478	TBSP	THAI BRITISH SECURITY PRINTING PUBLIC COMPANY LIMITED	Services
479	TC	TROPICAL CANNING (THAILAND) PUBLIC COMPANY LIMITED	Agro & Food Industry
480	TCAP	THANACHART CAPITAL PUBLIC COMPANY LIMITED	Financials
481	TCB	THAI CARBON BLACK PUBLIC COMPANY LIMITED	Industrials
482	TCC	THAI CAPITAL CORPORATION PUBLIC COMPANY LIMITED	Resources
483	TCCC	THAI CENTRAL CHEMICAL PUBLIC COMPANY LIMITED	Industrials
484	TCIF	THAI COMMERCIAL INVESTMENT FREEHOLD AND LEASEHOLD FUND	Property & Construction
485	TCJ	T.C.J. ASIA PUBLIC COMPANY LIMITED	Industrials
486	TCMC	THAILAND CARPET MANUFACTURING PUBLIC COMPANY LIMITED	Property & Construction
487	TCOAT	THAI COATING INDUSTRIAL PUBLIC COMPANY LIMITED	Industrials
488	TCP	THAI CAIN PAPER PUBLIC COMPANY LIMITED	Industrials
489	TEAM	TEAM PRECISION PUBLIC COMPANY LIMITED	Technology
490	TF	THAI PRESIDENT FOODS PUBLIC COMPANY LIMITED	Agro & Food Industry
491	TFD	THAI FACTORY DEVELOPMENT PUBLIC COMPANY LIMITED	Property & Construction
492	TFI	THAI FILM INDUSTRIES PUBLIC COMPANY LIMITED	Industrials
493	TFUND	TICON PROPERTY FUND	Property & Construction
494	TGCI	THAI-GERMAN CERAMIC INDUSTRY PUBLIC COMPANY LIMITED	Property & Construction
495	TGPRO	THAI-GERMAN PRODUCTS PUBLIC COMPANY LIMITED	Industrials
496	TGROWTH	TICON INDUSTRIAL GROWTH LEASEHOLD PROPERTY FUND	Property & Construction
497	TH	TONG HUA COMMUNICATIONS PUBLIC COMPANY LIMITED	Services
498	THAI	THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED	Services

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
499	THANA	THANASIRI GROUP PUBLIC COMPANY LIMITED	Property & Construction
500	THANI	RATCHTHANI LEASING PUBLIC COMPANY LIMITED	Financials
501	THCOM	THAICOM PUBLIC COMPANY LIMITED	Technology
502	THIP	THANTAWAN INDUSTRY PUBLIC COMPANY LIMITED	Industrials
503	THL	TONGKAH HARBOUR PUBLIC COMPANY LIMITED	Resources
504	THRE	THAI REINSURANCE PUBLIC COMPANY LIMITED	Financials
505	THREL	THAIRE LIFE ASSURANCE PUBLIC COMPANY LIMITED	Financials
506	TIC	THE THAI INSURANCE PUBLIC COMPANY LIMITED	Financials
507	TICON	TICON INDUSTRIAL CONNECTION PUBLIC COMPANY LIMITED	Property & Construction
508	TIES	THAI INDUSTRIAL & ENGINEERING SERVICE PUBLIC COMPANY LIMITED	Property & Construction
509	TIF1	THAI INDUSTRIAL FUND 1	Property & Construction
510	TIP	DHIPAYA INSURANCE PUBLIC COMPANY LIMITED	Financials
511	TIPCO	TIPCO FOODS PUBLIC COMPANY LIMITED	Agro & Food Industry
512	TISCO	TISCO FINANCIAL GROUP PUBLIC COMPANY LIMITED	Financials
513	TIW	THAILAND IRON WORKS PUBLIC COMPANY LIMITED	Industrials
514	TK	THITIKORN PUBLIC COMPANY LIMITED	Financials
515	TKS	T.K.S. TECHNOLOGIES PUBLIC COMPANY LIMITED	Services
516	TKT	T.KRUNGTHAI INDUSTRIES PUBLIC COMPANY LIMITED	Industrials
517	TLGF	TESCO LOTUS RETAIL GROWTH FREEHOLD AND LEASEHOLD PROPERTY FUND	Property & Construction
518	TLOGIS	TPARK LOGISTICS PROPERTY FUND	Property & Construction
519	TLUXE	THAILUXE ENTERPRISES PUBLIC COMPANY LIMITED	Agro & Food Industry
520	TMB	TMB BANK PUBLIC COMPANY LIMITED	Financials
521	TMC	T.M.C. INDUSTRIAL PUBLIC COMPANY LIMITED	Industrial
522	TMD	THAI METAL DRUM MANUFACTURING PUBLIC COMPANY LIMITED	Industrials
523	TMI	TEERA-MONGKOL INDUSTRY PUBLIC COMPANY LIMITED	Industrial
524	TMILL	T S FLOUR MILL PUBLIC COMPANY LIMITED	Agro & Food Industry
525	TMT	THAI METAL TRADE PUBLIC COMPANY LIMITED	Industrials
526	TMW	THAI MITSUWA PUBLIC COMPANY LIMITED	Industrial
527	TNDT	THAI NONDESTRUCTIVE TESTING PUBLIC COMPANY LIMITED	Services
528	TNH	THAI NAKARIN HOSPITAL PUBLIC COMPANY LIMITED	Services
529	TNITY	TRINITY WATTHANA PUBLIC COMPANY LIMITED	Financials
530	TNL	THANULUX PUBLIC COMPANY LIMITED	Consumer Products
531	TNPC	THAI NAM PLASTIC PUBLIC COMPANY LIMITED	Industrials

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
532	TNPF	TRINITY FREEHOLD AND LEASEHOLD PROPERTY FUND	Property & Construction
533	TOG	THAI OPTICAL GROUP PUBLIC COMPANY LIMITED	Consumer Products
534	TOP	THAI OIL PUBLIC COMPANY LIMITED	Resources
535	TOPP	THAI O.P.P. PUBLIC COMPANY LIMITED	Industrials
536	TPA	THAI POLY ACRYLIC PUBLIC COMPANY LIMITED	Industrials
537	TPAC	THAI PLASPAC PUBLIC COMPANY LIMITED	Industrial
538	TPC	THAI PLASTIC AND CHEMICALS PUBLIC COMPANY LIMITED	Industrials
539	TPCORP	TEXTILE PRESTIGE PUBLIC COMPANY LIMITED	Consumer Products
540	TPIPL	TPI POLENE PUBLIC COMPANY LIMITED	Property & Construction
541	TPOLY	THAI POLYCONS PUBLIC COMPANY LIMITED	Property & Construction
542	TPP	THAI PACKAGING & PRINTING PUBLIC COMPANY LIMITED	Industrials
543	TR	THAI RAYON PUBLIC COMPANY LIMITED	Consumer Products
544	TRC	TRC CONSTRUCTION PUBLIC COMPANY LIMITED	Property & Construction
545	TRIF	Thai Retail Investment Fund	Property & Construction
546	TRS	TRANG SEAFOOD PRODUCTS PUBLIC COMPANY LIMITED	Agro & Food Industry
547	TRT	TIRATHAI PUBLIC COMPANY LIMITED	Resources
548	TRU	THAI RUNG UNION CAR PUBLIC COMPANY LIMITED	Industrials
549	TRUBB	THAI RUBBER LATEX CORPORATION (THAILAND) PUBLIC CO.,LTD.	Agro & Food Industry
550	TRUE	TRUE CORPORATION PUBLIC COMPANY LIMITED	Technology
551	TRUEIF	TRUE TELECOMMUNICATIONS GROWTH INFRASTRUCTURE FUND	Technology
552	TSC	THAI STEEL CABLE PUBLIC COMPANY LIMITED	Industrials
553	TSF	THREE SIXTY FIVE PUBLIC COMPANY LIMITED	Services
554	TSI	THE THAI SETAKIJ INSURANCE PUBLIC COMPANY LIMITED	Financials
555	TSTE	THAI SUGAR TERMINAL PUBLIC COMPANY LIMITED	Services
556	TSTH	TATA STEEL (THAILAND) PUBLIC COMPANY LIMITED	Industrials
557	TT&T	TT&T PUBLIC COMPANY LIMITED	Technology
558	TTA	THORESEN THAI AGENCIES PUBLIC COMPANY LIMITED	Services
559	TTCL	TTCL PUBLIC COMPANY LIMITED	Property & Construction
560	TTI	THAI TEXTILE INDUSTRY PUBLIC COMPANY LIMITED	Consumer Products
561	TTL	TTL INDUSTRIES PUBLIC COMPANY LIMITED	Consumer Products
562	TTLPF	TALAAD THAI LEASEHOLD PROPERTY FUND	Property & Construction
563	TTTM	THAI TORAY TEXTILE MILLS PUBLIC COMPANY LIMITED	Consumer Products

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
565	TTW	TTW PUBLIC COMPANY LIMITED	Resources
565	TUCC	THAI UNIQUE COIL CENTER PUBLIC COMPANY LIMITED	Industrials
566	TUF	THAI UNION FROZEN PRODUCTS PUBLIC COMPANY LIMITED	Agro & Food Industry
567	TU-PF	T.U. DOME RESIDENTIAL COMPLEX LEASEHOLD PROPERTY FUND	Property & Construction
568	TVD	TV DIRECT PUBLIC COMPANY LIMITED	Services
569	TVI	THAIVIVAT INSURANCE PUBLIC COMPANY LIMITED	Financials
570	TVO	THAI VEGETABLE OIL PUBLIC COMPANY LIMITED	Agro & Food Industry
571	TWFP	THAI WAH FOOD PRODUCTS PUBLIC COMPANY LIMITED	Agro & Food Industry
572	TWP	THAI WIRE PRODUCTS PUBLIC COMPANY LIMITED	Industrials
573	TWS	THAI WAH STARCH PUBLIC COMPANY LIMITED	Agro & Food Industry
574	TWZ	TWZ CORPORATION PUBLIC COMPANY LIMITED	Technology
575	TYCN	TYCOONS WORLDWIDE GROUP (THAILAND) PUBLIC CO.,LTD.	Industrials
576	TYM	THAI GUAN METAL PUBLIC COMPANY LIMITED	Industrials
577	UAC	UAC GLOBAL PUBLIC COMPANY LIMITED	MAI Industrial
578	UBIS	UBIS (ASIA) PUBLIC COMPANY LIMITED	MAI Industrial
579	UEC	UNIMIT ENGINEERING PUBLIC COMPANY LIMITED	MAI Industrial
580	UIC	UNION INTRAGO	MAI Industrial
581	UKEM	UNION PETROCHEMICAL PUBLIC COMPANY LIMITED	MAI Industrial
582	UMI	THE UNION MOSAIC INDUSTRY PUBLIC COMPANY LIMITED	Property & Construction
583	UMS	UNIQUE MINING SERVICES PUBLIC COMPANY LIMITED	Resources
584	UNIPF	UNILOFT PROPERTY FUND	Property & Construction
585	UNIQ	UNIQUE ENGINEERING AND CONSTRUCTION PUBLIC COMPANY LIMITED	Property & Construction
586	UOB8TF	UOB FREEHOLD EIGHT THONGLOR PROPERTY FUND	Property & Construction
587	UOBKH	UOB KAY HIAN SECURITIES (THAILAND) PUBLIC COMPANY LIMITED	Financials
588	UP	UNION PLASTIC PUBLIC COMPANY LIMITED	Industrials
589	UPF	UNION PIONEER PUBLIC COMPANY LIMITED	Consumer Products
590	UPOIC	UNITED PALM OIL INDUSTRY PUBLIC COMPANY LIMITED	Agro & Food Industry
591	URBNPF	URBANA PROPERTY FUND (LEASE HOLD)	Property & Construction
592	UT	UNION TEXTILE INDUSTRIES PUBLIC COMPANY LIMITED	Consumer Products
593	UTP	UNITED PAPER PUBLIC COMPANY LIMITED	Industrials
594	UV	UNIVENTURES PUBLIC COMPANY LIMITED	Property & Construction

Appendix A : Name List of the Stock Exchange of Thailand : SET (Continue)

No	Symbol	Company	Industry
595	UVAN	UNIVANICH PALM OIL PUBLIC COMPANY LIMITED	Agro & Food Industry
596	UWC	UA WITHYA PUBLIC COMPANY LIMITED	Resources
597	VARO	VAROPAKORN PUBLIC COMPANY LIMITED	Industrials
598	VGI	VGI GLOBAL MEDIA PUBLIC COMPANY LIMITED	Services
599	VIBHA	VIBHAVADI MEDICAL CENTER PUBLIC COMPANY LIMITED	Services
600	VIH	SRIVICHAIVEJVIVAT PUBLIC COMPANY LIMITED	Services
601	VNG	VANACHAI GROUP PUBLIC COMPANY LIMITED	Property & Construction
602	VNT	VINYTHAI PUBLIC COMPANY LIMITED	Industrials
603	VTE	VINTAGE ENGINEERING PUBLIC CO., LTD.	Property & Construction
604	WACOAL	THAI WACOAL PUBLIC COMPANY LIMITED	Consumer Products
605	WAT	WATTANA CAPITAL PUBLIC COMPANY LIMITED	Property & Construction
606	WAVE	WAVE ENTERTAINMENT PUBLIC COMPANY LIMITED	Services
607	WG	WHITE GROUP PUBLIC COMPANY LIMITED	Industrials
608	WHA	W.H.A. CORPORATION PUBLIC COMPANY LIMITED	Property & Construction
609	WHAPF	WHA PREMIUM FACTORY AND WAREHOUSE FREEHOLD AND LEASEHOLD PROPERTY FUND	Property & Construction
610	WIIK	WIIK & HOEGLUND PUBLIC COMPANY LIMITED	Property & Construction
611	WIN	WYNCOAST INDUSTRIAL PARK PUBLIC COMPANY LIMITED	Property & Construction
612	WINNER	WINNER GROUP ENTERPRISE PUBLIC COMPANY LIMITED	Services
613	WORK	WORKPOINT ENTERTAINMENT PUBLIC COMPANY LIMITED	Services
614	YCI	YONG THAI PUBLIC COMPANY LIMITED	Industrials
615	YNP	YARNAPUND PUBLIC COMPANY LIMITED	Industrials
616	YUASA	YUASA BATTERY (THAILAND) PUBLIC COMPANY LIMITED	Industrial
617	ZMICO	SEAMICO SECURITIES PUBLIC COMPANY LIMITED	Financials

APPENDIX B

Definition of Variables in the Study

Appendix B.1 Definition of variables in Inside-Out Capabilities

Item	Definition	Source
IS Infrastructure	IS Infrastructure is a basic physical items of the information technology (IT) components viz: computer hardware and software, network resources, and services for operations, management of an enterprise IT environment to deliver IT solutions and efficiency services to its staffs, customers, and partners. IS resources include proprietary or complex and it is hard to imitate. It measures from the abilities of usage IS Infrastructure for operation, management, and supporting its stakeholders.	- Powell & Dent-Micallef , 1997 - Ray et al., 2001 - Wade & Hulland, 2004
Cost Effective IS Operation	This resource is ability to develop and manage IT systems of appropriate quality that effective function by using this resource to reduce costs and improve a cost leadership.	- Feeny & Willcocks, 1998 -Bharadwaj, 2000
IS Technical Skill	IS technical skills are personnel's skills of IT/IS employees which are the result of suitable and updated technology skills that relate to computer system, hardware and software. This resource is focused on technical skills that are advanced, complex and difficult to imitate. Some IS technical skills cannot be easily transferred to the other.	- Feeny & Willcocks, 1998 -Bharadwaj, 2000 - Wade & Hulland, 2004
IS Development	IS Development is the ability to develop or experiment with new technologies. It emphasizes the future capabilities participate in managing a system development life cycle of supporting competitive advantage and lead to firm performance.	- Ross et al., 1996 -Bharadwaj, 2000 - Wade & Hulland, 2004

Appendix B.2 Definition of variables in Outside-In Capabilities

Item	Definition	Source
External Relationship Management	This capability is the firm's ability to manage and link between the IS function and stakeholders. It indicates itself as an ability to work with stakeholders, such as developing appropriate system and infrastructure requirement for firm and suppliers. It includes solutions for managing customer relationships and supporting customer services.	- Feeny & Willcocks, 1998 -Bharadwaj, 2000 - Wade & Hulland, 2004
Market Responsiveness	Market Responsiveness are abilities for collecting the information from external sources to the firm and the firm's can change the strategic when necessary for quick response. It includes the abilities to manage project rapidly and can react quickly to changes in market conditions.	- Javenpaa & Leidner, 1998 -Bharadwaj, 2000

Appendix B.3 Definition of variables in Spanning Capabilities

Item	Definition	Source
IS-Business Partnerships	This capability is the processes of integration and alignment between the IS function and other department's function of the firm. It focuses on building relationships within the firm which help to span the traditional gaps between functions and departments. The result can create firm performance.	- Reich & Benbasat, 1996 - Wade & Hulland, 2004
IS Planning and Change Management	This capability focuses the ability to plan, manage, and use appropriate technology architectures and standards for helping to span these gaps. This capability includes the ability to forecast future changes, growth, and choose best platforms, this is the ability of IS manager.	-Bharadwaj, 2000 - Wade & Hulland, 2004

Appendix B.4 Definition of variables in IT support for core competencies

Item	Definition	Source
IT support for Market-access competencies	IT support for Market-access competencies are organization's abilities to be propinquity to the customers and identify customer's needs effectively and enhancing responsiveness in timely manner.	- Ravichandran & Lertwongsatien, 2005
IT support for Integrity-Related competencies	IT support for Integrity-Related Competencies are organization's abilities to offer the efficient manufacturing operation, stream-lined supply chains and integrated business processes to create some indicators of competencies.	- Ravichandran & Lertwongsatien, 2005
IT support for functionalities-Related competencies	IT support for functionalities-Related Competencies are Higher Education's abilities to offer for developing new products and services with dominant customer benefits and increasing the speed of responding to business opportunities and treats.	- Ravichandran & Lertwongsatien, 2005

APPENDIX C

The Full Items of Each Variable in Survey Questionnaire

Appendix C.1 Sources of Variable of Strategic-IT Alignment

Variable/Item	Sources
(F1) Alignment of the Business Plan with IT Plan	
1. The Business Plan refers to the IS Plan.	Goldsmith, 1991; Kearns & Lederer, 2003
2. The Business Plan refers to specific IS applications and information technologies.	Sabherwal, 1989 ; Kearns & Lederer, 2003
3. The Business Plan utilizes the strategic capability of IS.	Goldsmith, 1991; Burns &Szeto, 2000;Kearns & Lederer, 2003
4. The Business Plan contains reasonable expectations of IS.	Lederer & Mendelow, 1989; Kearns & Lederer, 2003
(F2) Alignment of the IT Plan with Business Plan	
5. The IS Plan reflects the business plan mission and goals.	King, 1978 ; Kearns & Lederer, 2003
6. The IS Plan supports the business plan strategies	King, 1978; Tallon et al., 2000 Burns & Szeto,2000; Kearns & Lederer, 2003
7. The IS Plan recognizes external business environment forces.	Johnston &Carrico, 1988; Burns &Szeto, 2000;Kearns & Lederer, 2003.
(F3) The CEO Participates in IT Planning The CEO ….	
8. plays an important role in the corporate IS steering committee.	Jarvenpaa & lves, 1991; Kearns & Lederer, 2003.
9. becomes knowledgeable about competitor' use of IS and IS opportunities within the firm.	Jarvenpaa & lves, 1991; Kearns & Lederer, 2003.
10. has frequent informal contacts with IS management.	Reich & Benbasat, 2000; Kearns & Lederer, 2003.
11. regards spending on IS as strategic investments rather than expenses to be controlled	Jarvenpaa & lves, 1991; Kearns & Lederer, 2003.
(F4) The CIO Participates in Business Planning :The IT executive …	
12. regularly attends business planning meetings.	Sambamurthy & Zmud, 1999; Kearns & Lederer, 2003.
13. contributes to the formulation of business goals.	Kearns & Lederer, 2003.
14. has regular informal contacts with top management.	Reich & Benbasat, 2000; Kearns & Lederer, 2003.
15. has frequent contacts with the CEO.	Raghunathan & Raghunathan, 1990;Kearns & Lederer, 2003.

Appendix C.2 Sources of Variable of IS Capabilities

Variable/Item	Sources /Adapt from
(F5) Inside-Out Capabilities	
1. IS Infrastructure can be used for operation, management, and supporting its stakeholders.	- Powell & Dent-Micallef , 1997 - Ray et al., 2001 - Wade & Hulland, 2004
2. The IT/IS staff have good and advance technical IT skills.	- Feeny & Willcocks, 1998 - Bharadwaj, 2000 - Wade & Hulland, 2004
3. There are capabilities to provide IS development with new technologies in the future.	- Ross et al., 1996 ; Bharadwaj, 2000; Wade & Hulland, 2004
4. There are capabilities to provide efficient and Cost-effective IS Operation.	- Feeny & Willcocks, 1998 -Bharadwaj, 2000
(F6) Outside-In Capabilities	
5. There are capabilities to work with supplier and outsourcing partners to develop appropriate IS for the firm.	- Feeny & Willcocks, 1998 - Bharadwaj, 2000 - Wade & Hulland, 2004
6. There are capabilities to work with customer, i.e., entrepreneurs, students, graduates to provide solutions, support, and services.	- Feeny & Willcocks, 1998 - Bharadwaj, 2000 - Wade & Hulland, 2004
7. There are capabilities to develop and manage IS projects rapidly.	- Javenpaa & Leidner, 1998 -Bharadwaj, 2000
8. There are capabilities to change IS quickly to the market conditions.	- Javenpaa & Leidner, 1998 -Bharadwaj, 2000
(F7) Spanning Capabilities	
9. There are capabilities to integrate IS function with other functional areas of the organizations.	- Reich & Benbasat, 1996 - Wade & Hulland, 2004
10. There are capabilities to align IS function with other functional areas of the organizations.	- Reich & Benbasat, 1996 - Wade & Hulland, 2004
11. There are capabilities to plan and manage IS architectures and standards for the organizations.	-Bharadwaj, 2000 - Wade & Hulland, 2004
12. There are capabilities to choose platforms and make change to accommodate future change.	-Bharadwaj, 2000 - Wade & Hulland, 2004

Appendix C.3 Sources of Variable of IT Support for Core Competencies

Variable/Item	Source/Adapt from
IT Support for Market-Access Competencies	
1. Providing necessary information to customers.	Ravichandran and Lertwongsatien (2005)
2. Determining customers requirements (e.g., products, preference, pricing, and quantity).	Ravichandran and Lertwongsatien (2005)
3. Tailoring the products /services to match customers' needs.	Ravichandran and Lertwongsatien (2005)
IT Support for Integrity-Related Competencies	
4. Enhancing business process flexibility.	Ravichandran and Lertwongsatien (2005)
5. Integrating internal business units.	Ravichandran and Lertwongsatien (2005)
6. Using IT for increasing the speed of activities.	Ravichandran and Lertwongsatien (2005)
IT Support for Functionality-Related Competencies	
7. Developing new products /services.	Ravichandran and Lertwongsatien (2005)
8. Improving the speed of products development.	Ravichandran and Lertwongsatien (2005)
9. Increasing the speed of responding to business opportunities/threats.	Ravichandran and Lertwongsatien (2005)
10. Identifying new market segments.	Ravichandran and Lertwongsatien (2005)

Appendix C.4 Sources of Variable Organization Performance

Variable/Item	Source/ KPI Number
Financial Performance	
1. Our profit is increasing when compared with previous year.	Mithas et al., 2011
2. Our Return Of Asset(ROA) is more than previous year.	Mithas et al., 2011
3. Our market share has exceeded that of our competitors.	Mithas et al., 2011
Customer Performance	
4. Our customers remain satisfaction in our products and services.	Mithas et al., 2011
5. We always build good relationship with our customers.	Mithas et al., 2011
6. Our customers retention has exceeded that of our competitors.	Mithas et al., 2011
Human Resource Performance:	
7. The employees satisfy in their work.	Mithas et al., 2011
8. We have clearly work layout for guidelines to employees behave in working.	Mithas et al., 2011
9. We encourage our employees to develop their knowledge and skills.	Mithas et al., 2011
Organization Effectiveness Performance	
10. We can deliver products and services to customers very quickly.	Mithas et al., 2011
11. We design productivity exceeded that of our competitors	Mithas et al., 2011
12. We have brought new products and services to the market faster than of our competitors.	Mithas et al., 2011
13. Our Information Management have effective to support our business processes more than of our competitors	Mithas et al., 2011

APPENDIX D

Full Survey Questionnaire in the study

English Version Questionnaire

Research Questionnaire

Strategic-IT Alignment and Resource-Based View : An Integrated Model for Contribution the Organization Performance

Dear Participants,

Please complete this questionnaire that will ask for your opinion and experiences of your role in strategic planning and administration of your organization. It will take approximately 30 minutes to complete this questionnaire. This questionnaire is the data collection instrument for a Doctoral Dissertation project under supervision of Rajamangala University of Technology Thanyaburi. The research title is Strategic-IT Alignment and Resource-Based View : An Integrated Model for Contribution the organization Performance.

The data collected from each questionnaire will be treated confidentially and will not be identifiable to any particular participant. The data collection is related to the topic and concepts of the researcher. Your participation is voluntary. You may refuse to participate any time. The results of this study will be shared with the participating organization. This will be done for the organization that has direct attention to important matters from the questionnaire. The purpose of sharing general results with the participating organization is to encourage action, if any is needed, toward improvement especially the organization in Thailand. This questionnaire has five parts, please answer all of them.

Thank you for participation in this study.

Rachadaporn Pinrattananont
Rajamangala University of Technology Thanyaburi

Note :

1. Chief Executive Officer (CEO) is an administrator in the top level of the organization .
2. Chief Information Officer (CIO) is an administrator in information system (IS) or information technology (IT) office of the organization.

Part 1: Demographic information and Overview of the organization

1. Gender

   1. ☐ Male

   2. ☐ Female

2. Position

   1. ☐ President/ Vice president

   2. ☐ Director/Associate Director

   3. ☐ Manager

3. Name of your organization ……

4. Type of the organization

   1. ☐ Agriculture and Food Industry 2. ☐ Consumer Productions

   3. ☐ Financial 4. ☐ Industrials

   5. ☐ Property and Constructions 6. ☐ Resources

   7. ☐ Services 8. ☐ Technology

   9. ☐ MAI Industry

5. The number of years that your organization's was operated ..…… years.

6. Number of staff : …… Persons.

7. Number of staff in IT/IS department : ……. Persons.

8. Estimated proportion of IT budget to overall budget : …… %

9. What is the management level of your Chief Information Officer (CIO) in Administration line from top management? ……

Part 2 Please indicate the extent to which you agree with each of the following statement as it relates to the organization's strategic IT alignment approach using scale
(1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and
5 = strongly agree)

Statement	Level of Agreement				
	1	2	3	4	5
Alignment of the Business Plan with IT Plan					
1. The Business Plan refers to the IS Plan.					
2. The Business Plan refers to specific IS applications and information technologies.					
3. The Business Plan utilizes the strategic capability of IS.					
4. The Business Plan contains reasonable expectations of IS.					
Alignment of the IT Plan with Business Plan					
5. The IS Plan reflects the business plan, mission, and goals.					
6. The IS Plan supports the business strategies.					
7. The IS Plan recognizes external business environment forces.					
The CEO Participates in IT Planning : The CEO ….					
8. plays an important role in the corporate IS steering committee.					
9. becomes knowledgeable about competitor' use of IS and IS opportunities within the firm					
10. has frequent informal contacts with IS management.					
11. regards spending on IS as strategic investments rather than expenses to be controlled.					
The CIO Participates in Business Planning : The IT executive …					
12. regularly attends business planning meetings.					
13. contributes to the formulation of business goals.					
14. has regular informal contacts with top management.					
15. has frequent contacts with the CEO.					

Part 3 Please indicate the extent to which you agree with each of the following statement as it relates to the organization's IS Capabilities (a type of IS resources) approach using scale (1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree)

Statement	Level of Agreement				
	1	2	3	4	5
Inside-Out Capabilities					
1. IS Infrastructure can be used for operation, management, and supporting its stakeholders.					
2. The IT/IS staff have good and advance technical IT skills.					
3. There are capabilities to provide IS development with new technologies in the future.					
4. There are capabilities to provide efficient and Cost-Effective IS Operation.					
Outside-In Capabilities					
5. There are capabilities to work with supplier and outsourcing partners to develop appropriate IS for the firm.					
6. There are capabilities to work with customers to provide solutions, support, and services.					
7. There are capabilities to develop and manage IS projects rapidly.					
8. There are capabilities to change IS quickly to the market conditions.					
Spanning Capabilities					
9. There are capabilities to integrate IS function with other functional areas of the organizations.					
10. There are capabilities to align IS function with other functional areas of the organizations.					
11. There are capabilities to plan and manage IS architectures and standards for the organizations.					
12. There are capabilities to choose platforms and make change to accommodate future change.					

Part 4 Please indicate the extent to which you agree with each of the following statement as it relates to the organization's using IT support for your core competencies approach using scale (1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree)

Statement	Level of Agreement				
	1	2	3	4	5
We are questioned about used IT in the organization.					
IT Support for Market-Access Competencies					
1. Providing necessary information to customers.					
2. Determining customers requirements (e.g., products, preference, pricing, and quantity).					
3. Tailoring the products/services to match customers' needs.					
IT Support for Integrity-Related Competencies					
4. Enhancing business process flexibility.					
5. Integrating internal business units.					
6. Using IT for increasing the speed of activities.					
IT Support for Functionality-Related Competencies					
7. Developing new products/services.					
8. Improving the speed of product development.					
9. Increasing the speed of responding to business opportunities/threats.					
10. Identifying new market segments					

Part 5 Please indicate the extent to which you agree with each of the following statement as it relates to the organization's performance approach using scale (1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree)

Statement	Level of Agreement				
	1	2	3	4	5
Financial Performance					
1. Our profit is increasing when compared with previous year.					
2. Our Return Of Asset(ROA) is more than previous year.					
3. Our market share has exceeded that of our competitors.					
Customer Performance					
4. Our customers remain satisfaction in our products and services.					
5. We always build good relationship with our customers.					
6. Our customers retention has exceeded that of our competitors.					
Human Resource Performance:					
7. The employees satisfy in their work.					
8. We have clearly work layout for guidelines to employees behave in working.					
9. We encourage our employees to develop their knowledge and Skills.					
Organization Effectiveness Performance					
10. We can deliver products and services to customers very quickly.					
11. We design productivity exceeded that of our competitors					
12. We have brought new products and services to the market faster than of our competitors.					
13. Our Information Management have effective to support our business processes more than of our competitors					

Thai Version Questionnaire

แบบสอบถามสำหรับการศึกษา

การปรับกลยุทธ์ทางไอทีและมุมมองทรัพยากร : ตัวแบบบูรณาการเพื่อสนับสนุน

ผลการดำเนินงานขององค์กร

เรียน ผู้บริหารงานทางด้านไอทีและสารสนเทศ (CIO)

กรุณากรอกแบบสอบถามอย่างสมบูรณ์ เกี่ยวกับความคิดเห็นด้านประสบการณ์ของบทบาทหน้าที่ เกี่ยวกับแผนกลยุทธ์และการบริหารงานของท่านในองค์กร, การตอบแบบสอบถามใช้เวลาประมาณ 30 นาที แบบสอบถามนี้เป็นส่วนหนึ่งของเครื่องมือที่ใช้ในการเก็บข้อมูลสำหรับนักศึกษาระดับปริญญาเอกของมหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี ในหัวข้อวิจัยเรื่อง **"การปรับกลยุทธ์ทางไอทีและมุมมองทรัพยากร : ตัวแบบบูรณาการเพื่อสนับสนุนผลการดำเนินงานขององค์กร"**

ข้อมูลที่เก็บรวบรวมจากแบบสอบถามของแต่ละบุคคลจะถูกเก็บไว้เป็นความลับ และไม่ระบุตัวตนของผู้ตอบแบบสอบถามแต่ละคน ข้อมูลที่เก็บรวบรวมเป็นเรื่องและแนวคิดที่เกี่ยวข้องกับหัวข้อวิจัยของผู้วิจัย การมีส่วนร่วมในการตอบแบบสอบถามของท่านเป็นความสมัครใจ ท่านสามารถจะปฏิเสธไม่เข้าร่วมได้ตลอดเวลา ผลของการวิจัยนี้จะนำเสนอให้กับองค์กรที่เข้าร่วมโครงการ และทำเพื่อสร้างโอกาสสำหรับองค์กรที่มีความสนใจตรงกับเรื่องที่สำคัญซึ่งปรากฏในแบบสอบถาม ซึ่งผู้วิจัยจะนำเสนอข้อมูลที่เป็นประโยชน์สามารถส่งเสริมและพัฒนาองค์กรในประเทศไทย

ขอบพระคุณสำหรับความกรุณาและการมีส่วนร่วมในการศึกษาหัวข้อวิจัยนี้

รัชดาภรณ์ ปิ่นรัตนานนท์

นักศึกษาปริญญาเอก, คณะบริหารธุรกิจ มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี

คำชี้แจง

1. แบบสอบถามมีทั้งหมด 5 ส่วนโปรดตอบให้ครบทุกส่วน โดย
   1.1 ส่วนที่ 1 เป็นข้อมูลผู้ตอบและภาพรวมขององค์กร
   1.2 ส่วนที่ 2 การปรับกลยุทธ์เทคโนโลยีสารสนเทศขององค์กร
   1.3 ส่วนที่ 3 การวัดสมรรถนะ(ความสามารถ) ทางระบบสารสนเทศ
   1.4 ส่วนที่ 4 การใช้เทคโนโลยีสารสนเทศเพื่อสนับสนุนความสามารถหลักขององค์กร
   1.5 ส่วนที่ 5 ผลการดำเนินงานขององค์กรของท่าน

   ส่วนที่ 2 ถึง ส่วนที่ 5 ใช้เกณฑ์การวัดดังต่อไปนี้ 1 = ไม่เห็นด้วยอย่างยิ่ง , 2 = ไม่เห็นด้วย , 3 = เฉยๆ , 4 = เห็นด้วย , และ 5 = เห็นด้วยอย่างยิ่ง
2. CEO คือ ประธาน/หัวหน้าเจ้าหน้าที่ ด้านบริหาร หรือผู้บริหารระดับสูงขององค์กร
3. CIO คือ ประธาน/หัวหน้าเจ้าหน้าที่ ด้านสารสนเทศ หรือผู้บริหารระดับสูงของด้านสารสนเทศขององค์กร

ส่วนที่ 1 : ข้อมูลทางประชากรศาสตร์และภาพรวมขององค์กร

1. เพศ
    1. ☐ ชาย
    2. ☐ หญิง
2. ตำแหน่ง
    1. ☐ ประธาน/รองประธาน
    2. ☐ ผู้อำนวยการ/รองผู้อำนวยการ
    3. ☐ ผู้จัดการ/รองผู้จัดการ
    4. ☐ อื่นๆ ระบุ ……..……
3. ชื่อองค์กร ……..……
4. E-mail address : ……..
5. ประเภทองค์กร
    1. ☐ เกษตรและอุตสาหกรรมอาหาร
    2. ☐ สินค้าอุปโภคบริโภค
    3. ☐ ธุรกิจการเงิน
    4. ☐ วัตถุดิบและสินค้าอุตสาหกรรม
    5. ☐ อสังหาริมทรัพย์และก่อสร้าง
    6. ☐ ทรัพยากร
    7. ☐ บริการ
    8. ☐ เทคโนโลยี
    9. ☐ ธุรกิจขนาดกลาง
6. องค์กรของท่านเปิดดำเนินการมา …… ปี
7. จำนวนบุคลากรทั้งหมดขององค์กร …… คน
8. จำนวนบุคลากรในสายงานด้านสารสนเทศ …… คน
9. สัดส่วนงบประมาณทางด้านไอทีต่องบประมาณโดยรวม ประมาณร้อยละ: ……..
10. ผู้บริหารงานด้านสารสนเทศ (CIO) อยู่ในระดับที่เท่าใดในสายการบริหารจากระดับบนสุดของการบริหารขององค์กร ……

ส่วนที่ 2 กรุณาระบุระดับความคิดเห็นของคุณกับแต่ละรายการต่อไปนี้ ที่เกี่ยวข้องกับการปรับกลยุทธ์ เทคโนโลยีสารสนเทศขององค์กรของท่าน ใช้เกณฑ์การวัดดังต่อไปนี้

1 = ไม่เห็นด้วยอย่างยิ่ง , 2 = ไม่เห็นด้วย , 3 = เฉยๆ , 4 = เห็นด้วย , และ 5 = เห็นด้วยอย่างยิ่ง

รายการ	ระดับความคิดเห็น				
	1	2	3	4	5
การปรับแผนธุรกิจด้วยแผนไอที					
1. แผนธุรกิจหมายถึงแผนไอที					
2. แผนงานธุรกิจหมายถึงการเจาะจงการประยุกต์ใช้งานระบบสารสนเทศ และเทคโนโลยีสารสนเทศ					
3. แผนงานธุรกิจนำไปใช้เป็นความสามารถเชิงกลยุทธ์ของระบบสารสนเทศ					
4. แผนงานธุรกิจเป็นความคาดหวังที่มีเหตุมีผลของงานด้านระบบสารสนเทศ					
การปรับแผนไอทีด้วยแผนธุรกิจ					
5. แผนระบบสารสนเทศสะท้อนให้เห็นถึงแผน, ภารกิจและเป้าประสงค์					
6. แผนระบบสารสนเทศเป็นแผนที่สนับสนุนกลยุทธ์ทางธุรกิจ					
7. แผนระบบสารสนเทศตระหนักถึงพลังสภาพแวดล้อมภายนอกของธุรกิจ					
ผู้บริหารระดับสูงขององค์กรมีส่วนร่วมในการวางแผนไอที : ผู้บริหารระดับสูง...					
8. มีบทบาทสำคัญในการขับเคลื่อนของคณะกรรมการบริหารงานสารสนเทศ					
9. ได้รับความรู้เกี่ยวกับการใช้ระบบสารสนเทศของคู่แข่งและความเหมาะสมของระบบสารสนเทศในองค์กร					
10. มีการติดต่อที่ไม่เป็นทางการเป็นประจำกับฝ่ายจัดการระบบสารสนเทศ					
11. พิจารณาค่าใช้จ่ายทางระบบสารสนเทศเป็นกลยุทธ์การลงทุนมากกว่าเป็นค่าใช้จ่ายที่ต้องการควบคุม					
ผู้บริหารไอทีมีส่วนร่วมในการวางแผนธุรกิจ : โดยผู้บริหารไอที....					
12. เข้าร่วมการประชุมวางแผนธุรกิจเป็นประจำ					
13. มีส่วนสนับสนุนในการกำหนดเป้าหมายทางธุรกิจ					
14. มีการติดต่อที่ไม่เป็นทางการเป็นประจำกับผู้บริหารระดับสูง					
15. มีการติดต่อที่เป็นทางการเป็นประจำกับผู้บริหารระดับสูง					

ส่วนที่ 3 กรุณาระบุระดับความคิดเห็นของคุณกับแต่ละรายการต่อไปนี้ ที่เกี่ยวข้องกับการวัดสมรรถนะ (ความสามารถ) ทางระบบสารสนเทศ (ชนิดของทรัพยากรทางสารสนเทศ) ขององค์กรของท่าน ใช้เกณฑ์การวัดดังต่อไปนี้ 1 = ไม่เห็นด้วยอย่างยิ่ง , 2 = ไม่เห็นด้วย , 3 = เฉยๆ , 4 = เห็นด้วย , และ 5 = เห็นด้วยอย่างยิ่ง

รายการ	ระดับความคิดเห็น				
	1	2	3	4	5
Inside-Out Capabilities : ความสามารถที่อยู่ภายในสู่ภายนอก					
1. โครงสร้างพื้นฐานระบบสารสนเทศสามารถนำมาใช้สำหรับการดำเนินงาน, การบริหารจัดการและการสนับสนุนผู้มีส่วนได้เสีย					
2. บุคลากรด้านระบบสารสนเทศ/ไอที มีทักษะด้านเทคนิคทางไอที เป็นอย่างดีและทันสมัย					
3. มีความสามารถในการเตรียมการพัฒนาระบบสารสนเทศด้วยเทคโนโลยีใหม่ๆ ในอนาคต					
4. มีความสามารถในการจัดหาการดำเนินงานระบบสารสนเทศที่มีประสิทธิภาพและคุ้มค่าการลงทุน					
Outside-In Capabilities : ความสามารถจากภายนอกเข้าสู่ภายใน					
5. มีความสามารถในการทำงานร่วมกับผู้จัดจำหน่ายและการจัดหาพันธมิตรในการพัฒนาระบบสารสนเทศที่เหมาะสมกับองค์กร					
6. มีความสามารถในการทำงานร่วมกับลูกค้าในการเตรียมการ การแก้ปัญหา การสนับสนุนและการบริการ					
7. มีความสามารถในการพัฒนาและบริหารจัดการ โครงการระบบสารสนเทศอย่างรวดเร็ว					
8. มีความสามารถในการเปลี่ยนระบบสารสนเทศตามสภาวะตลาดอย่างรวดเร็ว					
Spanning Capabilities : ความสามารถที่รวมทั้งภายในและภายนอก					
9. มีความสามารถในการรวมระบบการทำงานทางสารสนเทศกับงานด้านต่างๆ ขององค์กร					
10. มีความสามารถในการปรับระบบการทำงานทางสารสนเทศกับงานด้านต่างๆ ขององค์กร					
11. มีความสามารถในการวางแผนและจัดการสถาปัตยกรรมและมาตรฐานทางไอทีสำหรับองค์กร					
12. มีความสามารถในการเลือกรูปแบบและทำให้เกิดการเปลี่ยนแปลงเพื่อรองรับการเปลี่ยนแปลงในอนาคต					

ส่วนที่ 4 กรุณาระบุระดับความคิดเห็นของคุณกับแต่ละรายการต่อไปนี้ ที่เกี่ยวข้องกับการใช้เทคโนโลยีสารสนเทศเพื่อสนับสนุนความสามารถหลักขององค์กรของท่าน ใช้เกณฑ์การวัดดังต่อไปนี้

1 = ไม่เห็นด้วยอย่างยิ่ง , 2 = ไม่เห็นด้วย , 3 = เฉยๆ , 4 = เห็นด้วย , และ 5 = เห็นด้วยอย่างยิ่ง

รายการ	ระดับความคิดเห็น				
	1	2	3	4	5
ผู้วิจัยกำลังตั้งคำถามเกี่ยวกับการใช้เทคโนโลยีสารสนเทศด้านต่างๆ ในองค์กร					
การใช้ IT สนับสนุนความสามารถหลักด้านการตลาด					
1. การจัดหาระบบการให้ข้อมูลข่าวสารที่จำเป็นแก่ลูกค้า					
2. การกำหนดความต้องการของลูกค้า (เช่นผลิตภัณฑ์, การกำหนดราคา และปริมาณ)					
3. การปรับปรุงสินค้า/บริการให้ตรงกับความต้องการของลูกค้า					
การใช้ IT สนับสนุนความสามารถหลักด้านการบูรณาการ					
4. การเสริมสร้างความยืดหยุ่นของกระบวนการทำงานทางธุรกิจ					
5. บูรณาการหน่วยงานภายในองค์กร					
6. การใช้เทคโนโลยีสารสนเทศเพื่อเพิ่มความเร็วของกิจกรรมต่างๆ					
การใช้ IT สนับสนุนความสามารถหลักด้านหน้าที่การทำงาน					
7. การพัฒนาสินค้าและบริการใหม่ๆ					
8. ปรับปรุงความเร็วของการพัฒนาผลิตภัณฑ์					
9. เพิ่มความเร็วในการตอบสนองต่อโอกาส / ภัยคุกคาม ขององค์กร					
10. สามารถระบุส่วนของตลาดใหม่					

ส่วนที่ 5 กรุณาระบุระดับความคิดเห็นของคุณกับแต่ละรายการต่อไปนี้ ที่เกี่ยวข้องกับผลการดำเนินงานขององค์กรใช้เกณฑ์การวัดดังต่อไปนี้

1 = ไม่เห็นด้วยอย่างยิ่ง , 2 = ไม่เห็นด้วย , 3 = เฉยๆ , 4 = เห็นด้วย , และ 5 = เห็นด้วยอย่างยิ่ง

รายการ	ระดับความคิดเห็น				
	1	2	3	4	5
ผลการดำเนินงานด้านการเงิน					
1. กำไรเพิ่มขึ้น เมื่อเทียบกับปีที่ผ่านมา					
2. อัตราผลตอบแทนของสินทรัพย์ (ROA) เพิ่มขึ้น เมื่อเทียบกับปีที่ผ่านมา					
3. สามารถเพิ่มส่วนแบ่งทางการตลาด (Market Share) จากคู่แข่ง					
ผลการดำเนินงานด้านลูกค้า					
4. ลูกค้ายังคงพึงพอใจในผลิตภัณฑ์และบริการของบริษัท					
5. บริษัทสร้างความสัมพันธ์ที่ดีต่อลูกค้าสม่ำเสมอ					
6. บริษัทยังคงรักษาลูกค้าของเรามากกว่าคู่แข่งขัน					
ผลการดำเนินงานด้านทรัพยากรมนุษย์					
7. พนักงานมีความพึงพอใจในงานของพวกเขา					
8. บริษัทมีแผนการทำงานที่ชัดเจนเพื่อเป็นแนวทางในการปฏิบัติงานของพนักงาน					
9. บริษัทสนับสนุนให้พนักงานพัฒนาความรู้และทักษะ					
ผลการดำเนินงานด้านประสิทธิภาพขององค์กร					
10. บริษัทส่งมอบผลิตภัณฑ์และบริการแก่ลูกค้าอย่างรวดเร็ว					
11. บริษัทออกแบบการผลิตที่เหนือกว่าคู่แข่งขัน					
12. บริษัทได้นำผลิตภัณฑ์และบริการใหม่ออกสู่ตลาดได้เร็วกว่าคู่แข่งขัน					
13. การจัดการสารสนเทศของบริษัทมีประสิทธิภาพสนับสนุนกระบวนการธุรกิจมากกว่าคู่แข่งขัน					

ขอบพระคุณสำหรับความกรุณาให้ข้อมูล

รัชดาภรณ์ ปิ่นรัตนานนท์

E-mail : nok_2104@hotmail.com

Tel : 086-8789627

ผู้วิจัย

APPENDIX E

The Assessment of IOC Score

Appendix E.1 : The assessment of IOC score for Strategic IT Alignment

Strategic IT Alignment	Expert Evaluation Score				
	Can Not Measure (-1)	Not Sure (0)	Can Measure (1)	IOC	Meaning
Alignment the Business Plan with IT Plan					
1.The Business Plan refers to the IS Plan.		1	2	0.67	Usable
2. The Business Plan refers to specific IS applications and information technologies.	-	1	2	0.67	Usable
3. The Business Plan utilizes the strategic capability of IS.	-	-	3	1	Usable
4. The Business Plan contains reasonable expectations of IS.	-	1	2	0.67	Usable
Alignment the IT Planwith Business Plan					
5. The IS Plan reflects the business plan, mission, and goals.	-	-	3	1	Usable
6. The IS Plan supports the business strategies.	-	-	3	1	Usable
7. The IS Plan recognizes external business environment force.	-	1	2	0.67	Usable
The CEO Participates in IT Planning : The CEO ….					
8. plays an important role in the corporate IS steering committee.	-	-	3	1	Usable
9. becomes knowledgeable about Competitor' use of IS and IS opportunities within the firm.	-	-	3	1	Usable
10. has frequent informal contacts with IS management.	-	1	2	0.67	Usable
11. regards spending on IS as strategic investments rather than expenses to be controlled.	-	1	2	0.67	Usable
The CIO Participates in Business Planning : The IT executive …					
12. regularly attends business planning meetings.	-	-	3	1	Usable
13. contributes to the formulation of business goals.	-	-	3	1	Usable
14. has regular informal contacts with top management.	-	-	3	1	Usable
15. has frequent contacts with the CEO.	-	-	3	1	Usable

Appendix E.2 : The assessment of IOC score for IS Capabilities

Organization's IS Capabilities	Expert Evaluation Score				
	Can Not Measure (-1)	Not Sure (0)	Can Measure (1)	IOC	Meaning
Inside-Out Capabilities					
1. IS Infrastructure can be used for operation, management, and supporting its stakeholders.	-	-	3	1	Usable
2. The IT/IS staff have good and advance technical IT skills.	-	-	3	1	Usable
3. There are capabilities to provide IS development with new technologies in the future.	-	-	3	1	Usable
4. There are capabilities to provide Efficient and Cost-Effective IS Operation.	-	-	3	1	Usable
Outside-In Capabilities					
5. There are capabilities to work with supplier and outsourcing partners to develop appropriate IS for the firm.	-	-	3	1	Usable
6. There are capabilities to work with customers to provide solutions, support, and services.	-	-	3	1	Usable
7. There are capabilities to develop and manage IS projects rapidly.	-	-	3	1	Usable
8. There are capabilities to change IS quickly to the market conditions.	-	-	3	1	Usable
Spanning Capabilities					
9. There are capabilities to integrate IS function with other functional areas of the organizations.	-	-	3	1	Usable
10. There are capabilities to align IS function with other functional areas of the organizations.	-	-	3	1	Usable
11. There are capabilities to plan and manage IS architectures and standards for the organizations.	-	-	3	1	Usable
12. There are capabilities to choose platforms and make change to accommodate future change.	-	-	3	1	Usable

Appendix E.3: The assessment of IOC score for IT Support for Organization's Core Competencies

IT support for organization's core competencies	Expert Evaluation Score				
	Can Not Measure (-1)	Not Sure (0)	Can Measure (1)	IOC	Meaning
IT Support for Market-Access Competencies					
1. Providing necessary information to customers.	-	-	3	1	Usable
2. Determining customers requirements (e.g., products, pricing, and quantity).	-	-	3	1	Usable
3. Tailoring the products/services to match customers' needs.	-	-	3	1	Usable
IT Support for Integrity-Related Competencies					
4. Enhancing business process flexibility.	-	-	3	1	Usable
5. Integrating internal business units.	-	-	3	1	Usable
6. Using IT for increasing speed of activities.	-	-	3	1	Usable
IT Support for Functionality-Related Competencies					
7. Developing new products/services.	-	-	3	1	Usable
8. Improving the speed of product development.	-	-	3	1	Usable
9. Increasing the speed of responding to business opportunities/threats.	-	-	3	1	Usable
10 Identifying new market segments	-	-	3	1	Usable

Appendix E.4: The assessment of IOC score for the Organization's Performance

Organization's Performance	Expert Evaluation Score				
	Can Not Measure (-1)	Not Sure (0)	Can Measure (1)	IOC	Meaning
Financial Performance					
1. Our profit is increasing when compared with previous year.	-	-	3	1	Usable
2. Our Return Of Asset(ROA) is more than previous year.	-	-	3	1	Usable
3. Our market share has exceeded that of our competitors.	-	1	2	0.67	Usable
Customer Performance					
4. Our customers remain satisfaction in our products and services.	-	-	3	1	Usable
5. We always build good relationship with our customers.	-	-	3	1	Usable
6. Our customers retention has exceeded that of our competitors.	-	-	3	1	Usable
Human Resource Performance:					
7. The employees satisfy in their work.	-	-	3	1	Usable
8. We have clearly work layout for guidelines to employees behave in working.	-	-	3	1	Usable
9. We encourage our employees to develop their knowledge and skills.	-	-	3	1	Usable
Organization Effectiveness Performance					
10. We can deliver products and services to customers very quickly.	-	-	3	1	Usable
11. We design productivity exceeded that of our competitors	-	-	3	1	Usable
12. We have brought new products and services to the market faster than of our competitors.	-	-	3	1	Usable
13. Our Information Management have effective to support our business processes more than of our competitors	-	1	2	0.67	Usable

APPENDIX F

Reliability Assessment By Cronbach's Alpha with SPSS

Appendix F.1 Reliability Assessment by Cronbach's Alpha Coefficient before dropped item

Constructs	Number of items in original scale	Number of items in refined scale	Cronbach's Alpha
Strategic-IT Alignment			
IT Plan - Business Plan Alignment	4	4	0.9106
Business Plan – IT Plan Alignment	3	3	0.9040
CEO Participates in IT Planning	4	4	0.9125
CIO Participates in Business Planning	4	4	0.9048
IS Capabilities			
Inside-Out Capabilities	4	4	0.9028
Outside-In Capabilities	4	4	0.9073
Spanning Capabilities	4	4	0.9055
IT Support for Core Competencies			
Market-access Competencies	3	3	0.9108
Integrity-related Competencies	3	3	0.8971
Functionality-related Competencies	4	4	0.8912
Organization Performance			
Financial Performance	3	3	0.9159
Customer Performance	3	3	0.9000
Human Resource Performance	3	3	0.9028
Organization Effectiveness Performance	4	4	0.9004

Appendix F.2 Reliability Assessment by Cronbach's Alpha Coefficient after dropped item

Constructs	Number of items in original scale	Number of items in refined scale	Cronbach's Alpha
Strategic-IT Alignment			**0.908**
IT Plan - Business Plan Alignment	4	4	0.923
Business Plan – IT Plan Alignment	3	3	0.918
CEO Participates in IT Planning	4	3	0.924
CIO Participates in Business Planning	4	4	0.918
IS Capabilities			**0.905**
Inside-Out Capabilities	4	3	0.916
Outside-In Capabilities	4	3	0.919
Spanning Capabilities	4	3	0.918
IT Support for Core Competencies			**0.900**
Market-access Competencies	3	2	0.917
Integrity-related Competencies	3	2	0.920
Functionality-related Competencies	4	4	0.919
Organization Performance			**0.905**
Financial Performance	3	3	0.926
Customer Performance	3	3	0.914
Human Resource Performance	3	3	0.916
Organization Effectiveness Performance	4	3	0.915

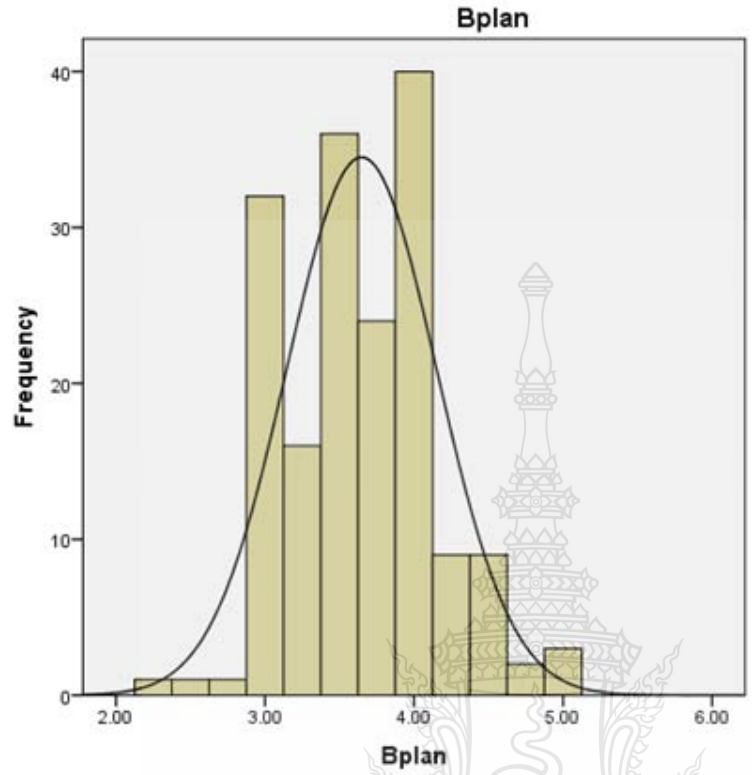
APPENDIX G

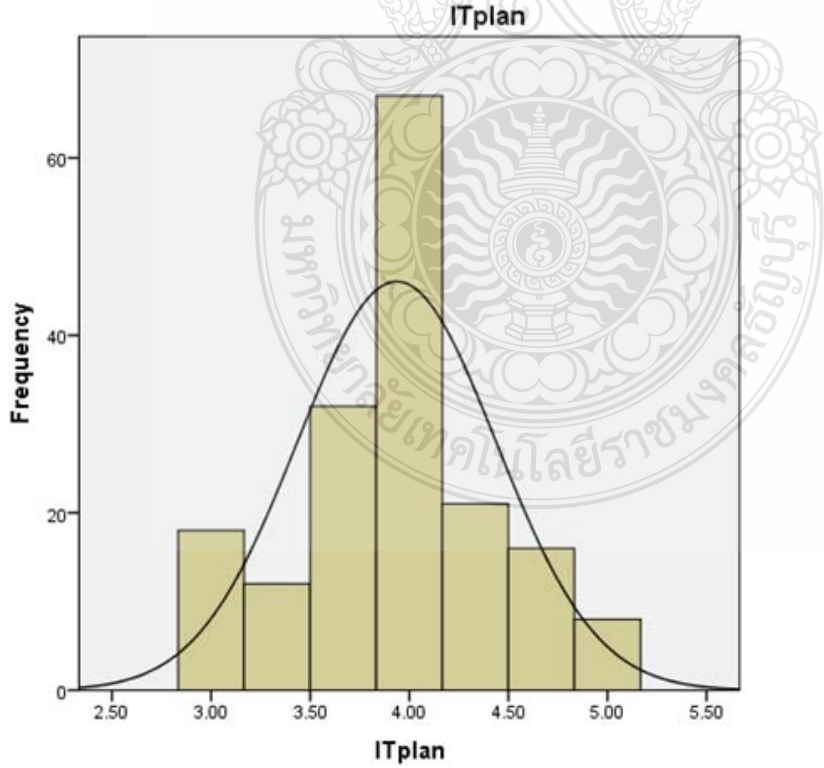
The Assessment for Normality Distribution

Appendix G.1 Skewness and Kurtosis score of constructs

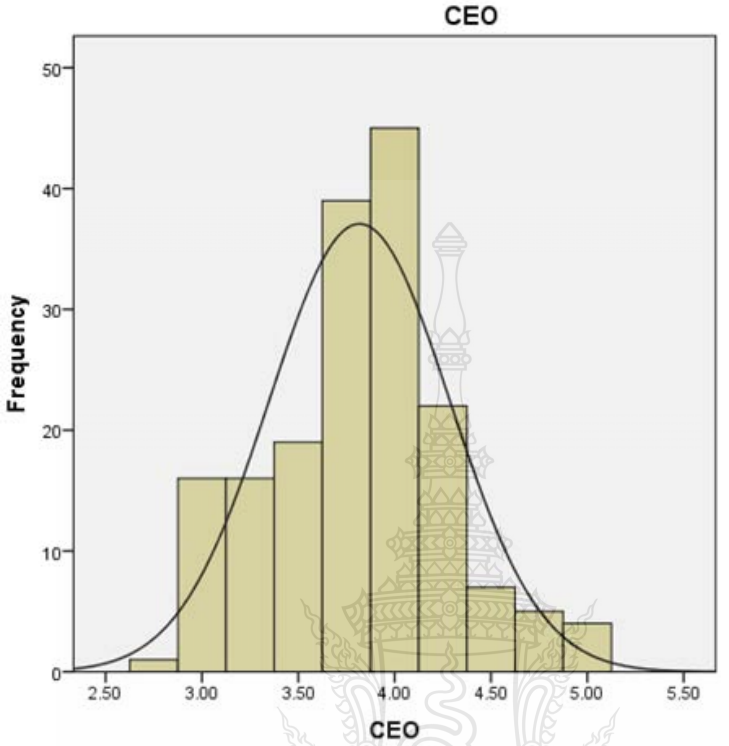
Variable	$\bar{x}$	Skewness	Std. error of skewness	Kurtosis	Std.error of kurtosis
Strategic-IT					
Bplan	3.650	0.205	0.184	-0.095	0.365
ITplan	3.945	-0.025	0.184	-0.132	0.365
CEO	3.842	-0.030	0.184	-0.107	0.365
CIO	3.769	0.341	0.184	0.211	0.365
IT capabilities					
Inside	4.015	-0.154	0.184	0.077	0.365
Outside	3.973	0.000	0.184	0.335	0.365
Span	3.977	-0.133	0.184	0.289	0.365
IT Support for Core Competencies					
Market	3.746	-0.148	0.184	-0.322	0.365
Integrity	4.100	-0.021	0.184	-0.080	0.365
Function	3.710	-0.095	0.184	0.263	0.365
Organization Performance					
Finance	-3.674	0.169	0.184	-0.205	0.365
Customer	4.017	-0.415	0.184	0.802	0.365
Human	3.952	0.003	0.184	-.347	0.365
Organize	3.636	0.539	0.184	-.073	0.365

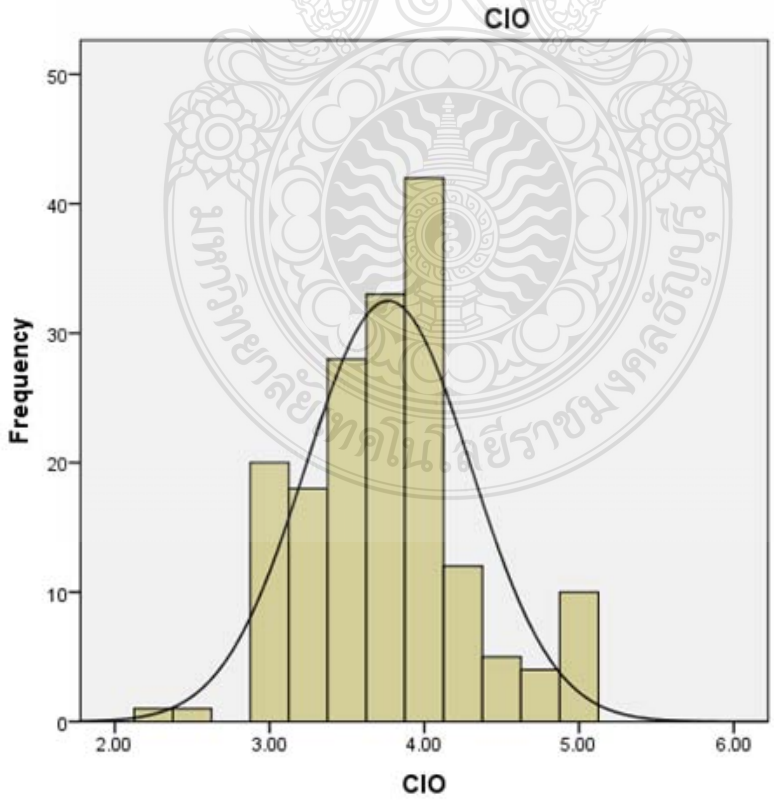
Appendix G.2 The Assessment for Normal Distribution of Strategic IT Alignment



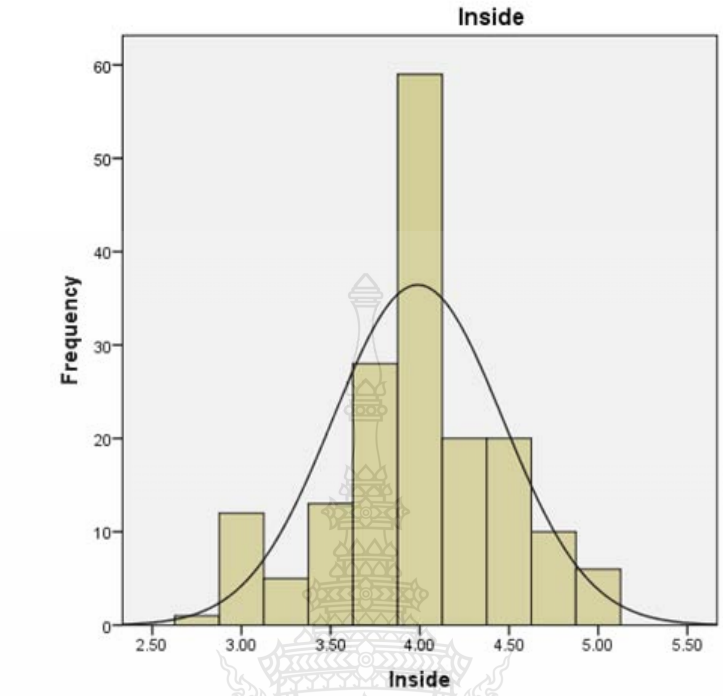


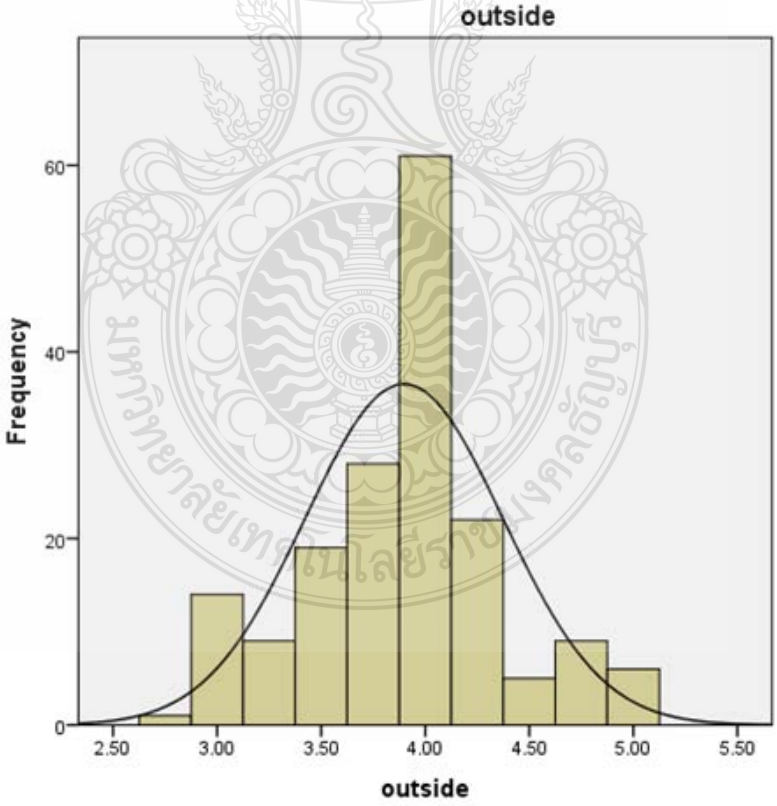
Appendix G.2 The Assessment for Normal Distribution of Strategic IT Alignment (Continue)



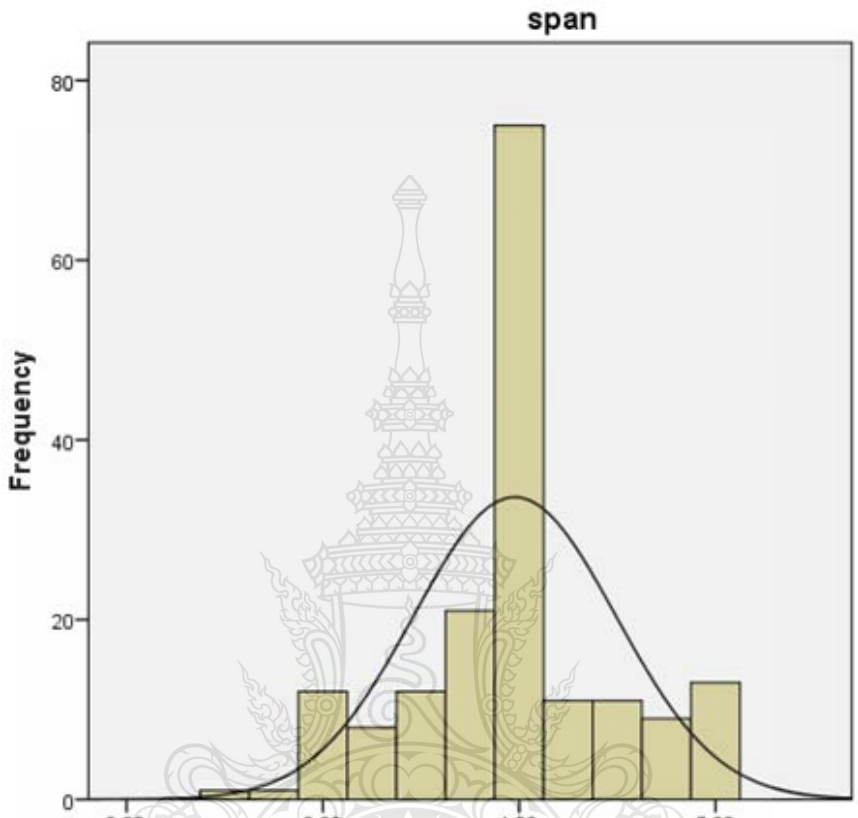


Appendix G.3 The Assessment for Normal Distribution of IS Capabilities

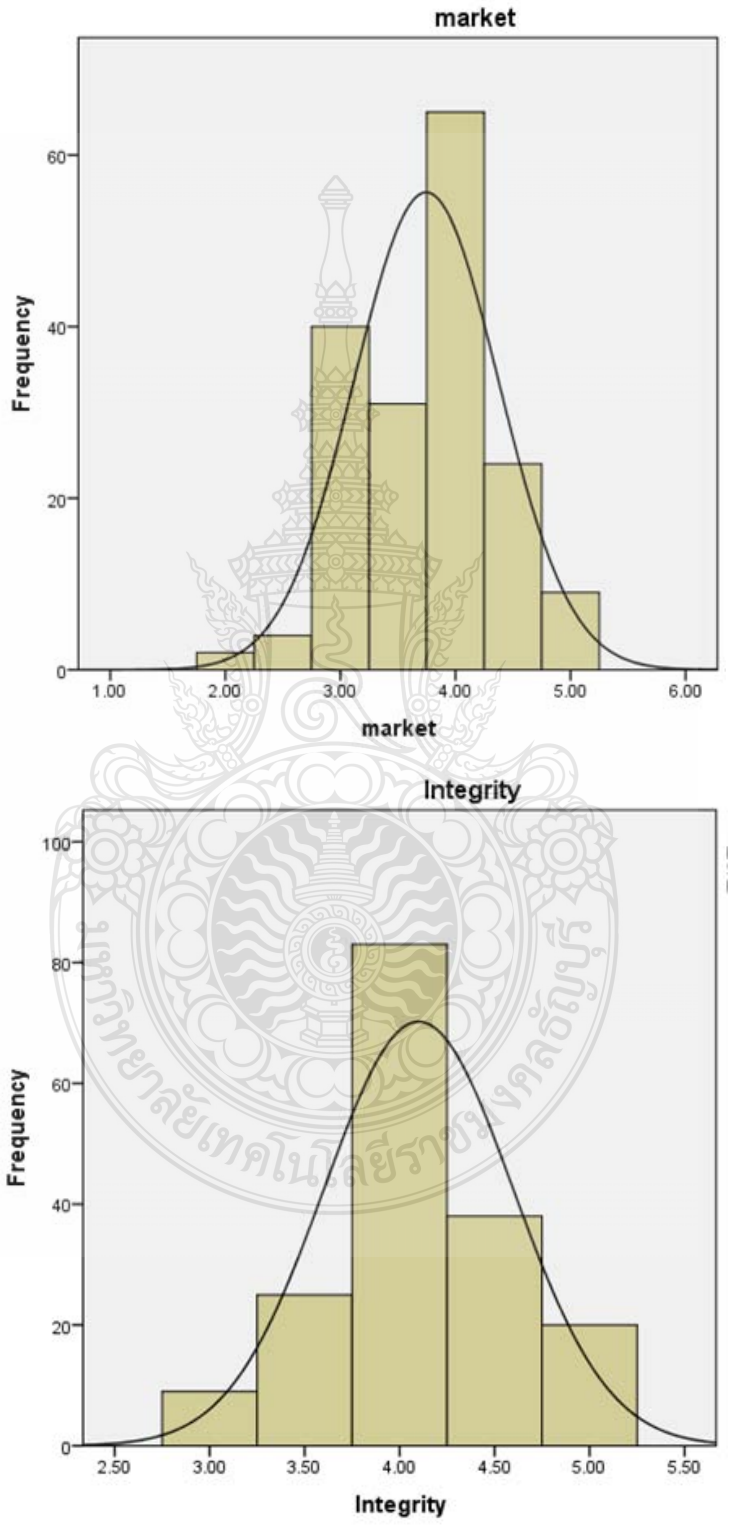




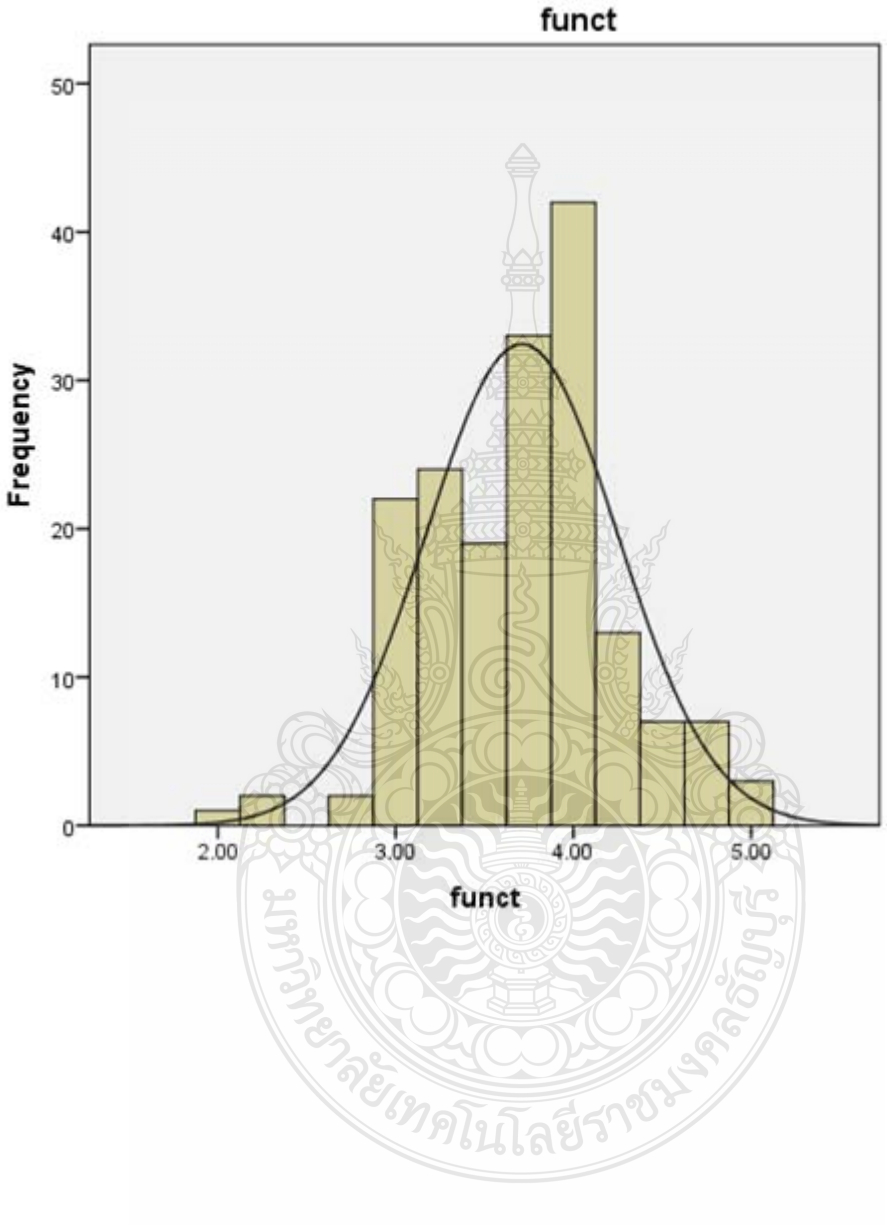
Appendix G.3 The Assessment for Normal Distribution of IS Capabilities (Continue)



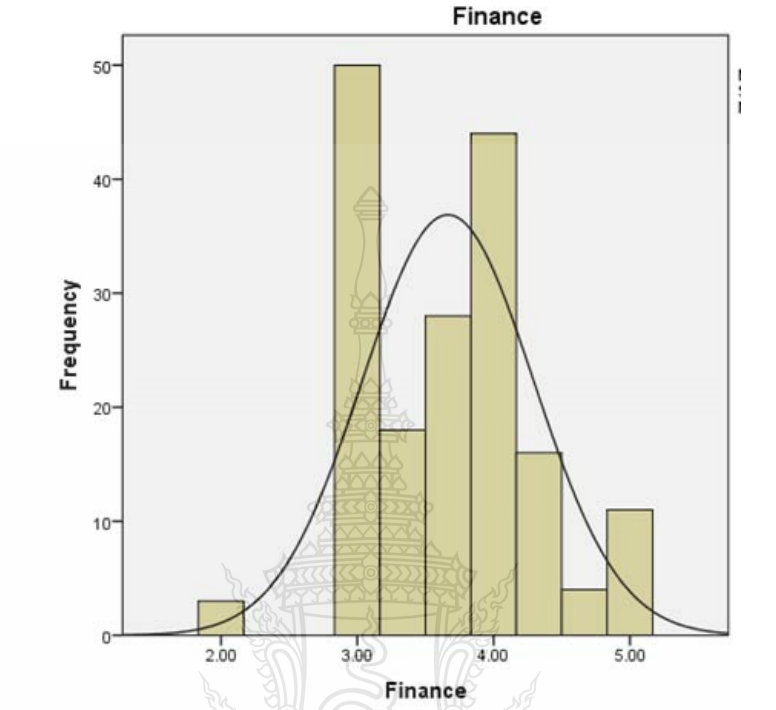
Appendix G.4 The Assessment for Normal Distribution of IT Support For Core Competencies

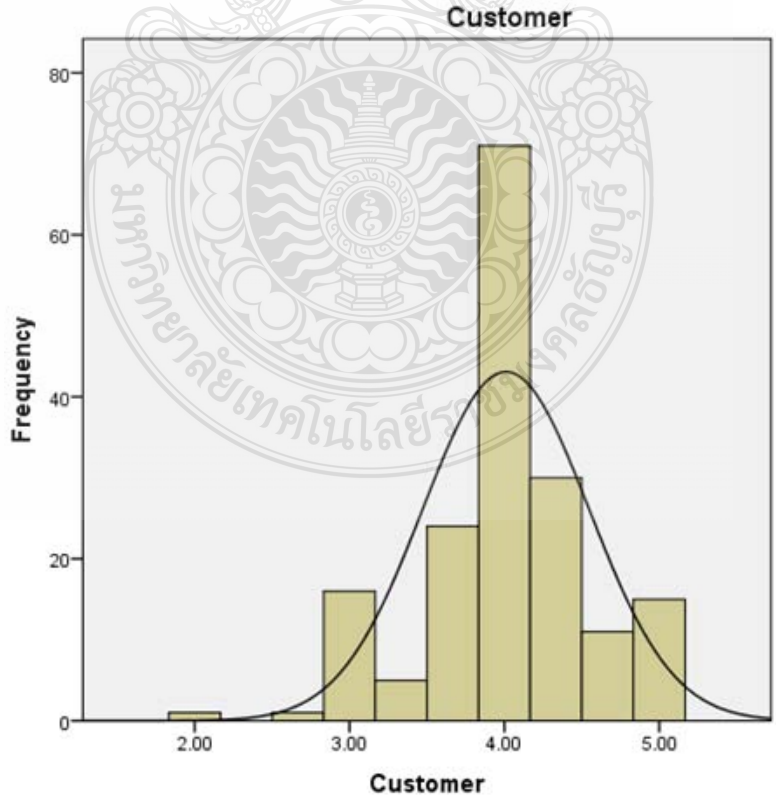


Appendix G.4 The Assessment for Normal Distribution of IT Support For Core Competencies (Continue)

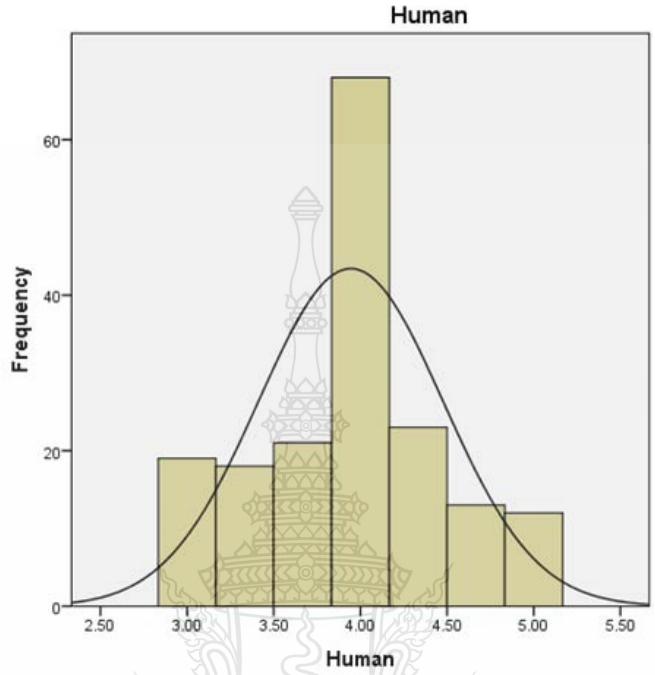


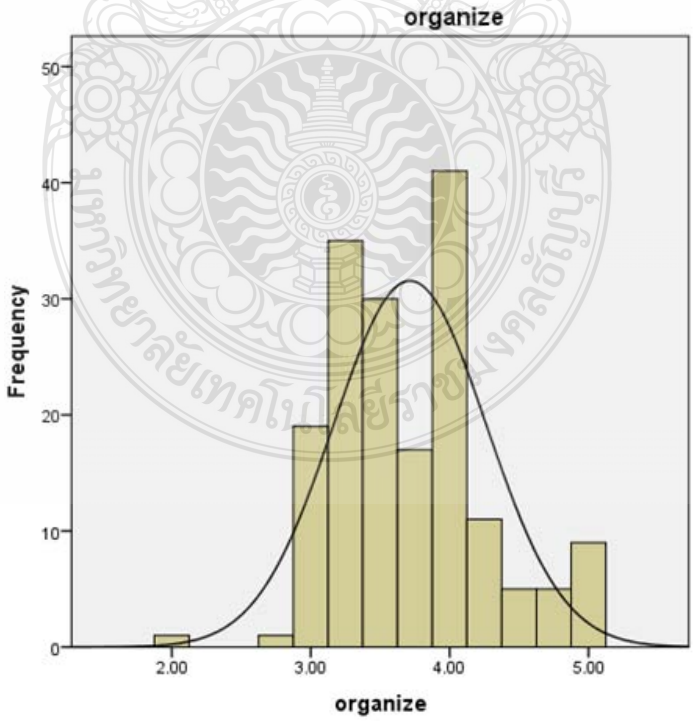
Appendix G.5 The Assessment for Normal Distribution of the Organization Performance





Appendix G.4 The Assessment for Normal Distribution of the Organization Performance (Continue)





APPENDIX H

Rotation Matrix and Factor Score of Factor Analysis

Appendix H.1 Total variance explained for Strategic-IT Alignment before dropped the items

Component	Initial Eigen Values			Extraction sums of squared loading			Rotation Sums of squared loading
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
CIO	4.818	32.122	32.122	4.818	32.122	32.122	2.732
ITplan	1.889	12.594	44.716	1.889	12.594	44.716	2.270
CEO	1.369	9.126	53.842	1.369	9.126	53.842	2.202
Bplan	1.231	8.210	62.052	1.231	8.210	62.052	2.104

*** Extraction Method : Principle Component Analysis.**

Appendix H.2 Rotated component matrix of Strategic-IT Alignment before dropped the items

Item	Business Plan	IT Plan	CEO Participates	CIO Participates
1. The Business Plan refers to the IS Plan.	**0.734**	-.016	0.263	0.113
2. The Business Plan refers to specific IS applications and information technologies.	**0.843**	0.010	0.046	-0.042
3. The Business Plan utilizes the strategic capability of IS.	**0.580**	0.515	-0.164	0.201
4. The Business Plan contains reasonable expectations of IS.	**0.564**	0.524	-0.153	0.243
5. The IS Plan reflects the business plan, mission, and goals.	0.061	**0.736**	0.158	0.202
6. The IS Plan supports the business strategies.	-0.064	**0.699**	0.411	0.084
7. The IS Plan recognizes external business environment forces.	0.101	**0.714**	0.162	0.138
8. The CEO plays an important role in the corporate IS steering committee	0.104	0.196	**0.606**	0.314
9. The CEO becomes knowledgeable about competitor' use of IS and IS opportunities within the firm	0.321	0.205	**0.446**	0.267
10. The CEO has frequent informal contacts with IS management.	-0.101	0.107	**0.727**	0.159
11. The CEO regards spending on IS as strategic investments rather than expenses to be controlled.	0.137	0.097	**0.796**	0.091
12. The CIO regularly attends business planning meetings.	0.052	0.115	0.158	**0.797**
13.The CIO contributes to the formulation of business goals.	0.178	0.197	0.044	**0.784**
14. The CIO has regular informal contacts with top management.	0.004	0.163	0.242	**0.636**
15. The CIO has frequent contacts with the CEO.	0.065	0.098	0.211	**0.832**

Appendix H.3 Total variance explained for IS Capabilities before dropped items

Component	Initial Eigen Values			Extraction sums of squared loading			Rotation Sums of squared loading
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Spanning	6.483	54.024	54.025	6.483	54.024	54.025	2.988
Outside	0.952	7.932	61.956	0.952	7.932	61.956	2.857
Inside	0.850	7.080	69.036	0.850	7.080	69.036	2.439

*** Extraction Method : Principle Component Analysis.**

Appendix H.4 Rotated component matrix of IS Capabilities before dropped the items

Item	Inside-Out Capabilities	Outside-In Capabilities	Spanning Capabilities
1. IS Infrastructure can be used for operation, management, and supporting its stakeholders.	**0.270**	0.135	0.531
2. The IT/IS staff have good and advance technical IT skills.	**0.777**	0.139	0.363
3.There are capabilities to provide IS development with new technologies in the future.	**.816**	.285	.208
4. There are capabilities to provide efficient and Cost-Effective IS Operation.	**0.726**	0.377	0.310
5. There are capabilities to work with supplier and outsourcing partners to develop appropriate IS for the firm.	0.116	**0.824**	0.262
6. There are capabilities to work with customers to provide solutions, support, and services.	0.259	**0.814**	0.196
7. There are capabilities to develop and manage IS projects rapidly.	0.306	**0.718**	0.307
8. There are capabilities to change IS quickly to the market conditions.	0.268	**0.526**	0.350
9. There are capabilities to integrate IS function with other functional areas of the organizations.	0.242	0.339	**0.756**
10. There are capabilities to align IS function with other functional areas of the organizations.	0.176	0.280	**0.849**
11. There are capabilities to plan and manage IS architectures and standards for the organizations.	0.292	0.277	**0.734**
12. There are capabilities to choose platforms and make change to accommodate future change.	0.386	0.439	**0.529**

Appendix H.5 Total variance explained for IT Support for core Competencies before dropped items

Component	Initial Eigen Values			Extraction sums of squared loading			Rotation Sums of squared loading
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Function	4.619	46.192	46.192	4.619	46.192	46.192	2.362
Integrity	1.086	10.862	57.054	1.086	10.862	57.054	2.130
Market	0.905	9.053	66.106	0.905	9.053	66.106	2.119

*** Extraction Method : Principle Component Analysis.**

Appendix H. 6 Rotated component matrix of IT Support for core Competencies before dropped items

Item	Market-access Competencies	Integrity-related Competencies	Functionality-related Competencies
1. Providing necessary information to customers.	**0.374**	0.667	-0.021
2. Determining customers requirements (e.g., products, preference, pricing, and quantity).	**0.857**	0.195	0.124
3. Tailoring the products/services to match customers' needs.	**0.770**	0.175	0.367
4. Enhancing business process flexibility.	0.374	**0.432**	0.363
5. Integrating internal business units.	0.117	**0.766**	0.190
6. Using IT for increasing the speed of activities.	0.330	**0.686**	0.330
7. Developing new products/services.	0.455	0.036	**0.677**
8. Improving the speed of product development.	0.381	0.129	**0.752**
9. Increasing the speed of responding to business opportunities/threats.	0.004	0.524	**0.624**
10. Identifying new market segments	0.116	0.281	**0.722**

Appendix H.7 Total variance explained for Organization Performance before dropped items

Component	Initial Eigen Values			Extraction sums of squared loading			Rotation Sums of squared loading
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Customer	5.861	45.083	45.083	5.861	45.083	45.083	2.542
Finance	1.580	12.152	57.235	1.580	12.152	57.235	2.527
Organization	1.252	9.634	66.869	1.252	9.634	66.869	2.400
Human	1.015	7.804	74.673	1.015	7.804	74.673	2.238

*** Extraction Method : Principle Component Analysis.**

Appendix H. 8 Rotated component matrix of Organization Performance before dropped items

Item	Financial	Customer	Human Resource	Organization Effectiveness
1. Our profit is increasing when compared with previous year.	**0.850**	0.262	0.057	0.128
2. Our Return Of Asset(ROA) is more than previous year.	**0.904**	0.163	0.145	0.113
3. Our market share has exceeded that of our competitors.	**0.743**	0.192	0.156	0.176
4. Our customers remain satisfaction in our products and services.	0.326	**0.739**	0.164	0.279
5. We always build good relationship with our customers.	0.292	**0.803**	0.201	0.131
6. Our customers retention has exceeded that of our competitors.	0.170	**0.737**	0.129	0.207
7. The employees satisfy in their work.	0.307	0.036	**0.758**	0.251
8. We have clearly work layout for guidelines to employees behave in working.	0.184	0.184	**0.839**	0.201
9. We encourage our employees to develop their knowledge & Skills.	-0.067	0.392	**0.795**	0.050
10. We can deliver products and services to customers very quickly.	0.068	0.573	0.357	**0.422**
11. We design productivity exceeded that of our competitors	0.117	0.288	0.174	**0.803**
12. We have brought new products and services to the market faster than of our competitors.	0.235	0.252	0.114	**0.813**
13. Our Information Management have effective to support our business processes more than of our competitors	0.098	0.105	0.159	**0.783**

APPENDIX I

The Recommendation Form For CIO

Thai Version

แบบแสดงความคิดเห็นสำหรับผู้บริหารเทคโนโลยีสารสนเทศ

1. ชื่อองค์กร……

2. ตำแหน่ง

   1. ☐ ประธาน/รองประธาน
   2. ☐ ผู้อำนวยการ/รองผู้อำนวยการ
   3. ☐ ผู้จัดการ/รองผู้จัดการ
   4. ☐ อื่นๆระบุ ……

รายการแสดงความคิดเห็นและข้อเสนอแนะ

1. ความก้าวหน้าและการใช้งานเทคโนโลยีสารสนเทศ มีความสำคัญ สำหรับการดำเนินงานขององค์กร ของท่านอย่างไร

.....

.....

.....

.....

2. องค์กรของท่านมีการจัดทำแผนกลยุทธ์เทคโนโลยีสารสนเทศหรือไม่ ถ้ามีประสบความสำเร็จอย่างไร

.....

.....

.....

.....

3. อะไรเป็นปัจจัยสำคัญ ที่ทำให้กลยุทธ์เทคโนโลยีสารสนเทศดังกล่าวประสบความสำเร็จ

.....

.....

.....

.....

4. ในการจัดทำแผนกลยุทธ์เทคโนโลยีสารสนเทศ ใคร หรือ หน่วยงานใด มีบทบาทสำคัญ มี CEO หรือผู้บริหารอื่นๆ เข้ามามีส่วนร่วมหรือไม่ อย่างไร

.....

.....

.....

5. ในกระบวนการจัดทำแผนกลยุทธ์เทคโนโลยีสารสนเทศ มีการวิเคราะห์ถึงการเชื่อมโยงกับแผนกลยุทธ์ธุรกิจด้วยหรือไม่

.....

.....

.....

.....

.....

6. องค์กรของท่านมีการบริหารจัดการทรัพยากรและความสามารถเทคโนโลยีสารสนเทศหรือไม่อย่างไร

.....

.....

.....

.....

7. มีการใช้เทคโนโลยีสารสนเทศเพื่อสนับสนุนความสามารถหลักขององค์กรในด้านใดบ้าง

.....

.....

.....

.....

.....

8. องค์กรของท่านสามารถใช้เทคโนโลยีสารสนเทศเพื่อเพิ่มผลการดำเนินงานได้อย่างไร

.....

.....

.....

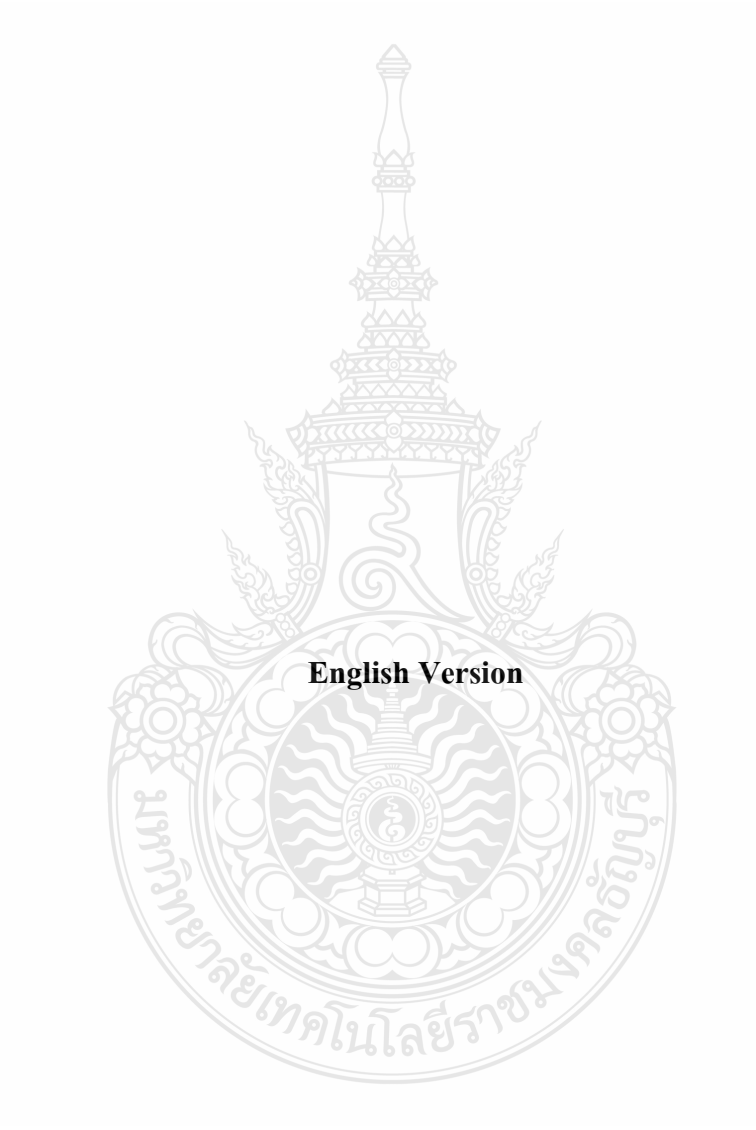
.....

ขอแสดงความนับถือและขอบพระคุณอย่างสูง

นางรัชดาภรณ์ ปิ่นรัตนานนท์

nok_2104@hotmail.com

(นักวิจัย)



English Version

Recommendation/Semi-Structured Interview Form For CIO

1. Organization's Name ……

2. Respondent's Position

1. ☐ President / Vice President 2. ☐ Director / Associate Director

3. ☐ Manager / Associate Manager 4. ☐ Other ……..

Listing the opinion and recommendation

1. How do advances in and applications of IT affect your organizational operation?

.....

….....

.....

.....

2. Does your organization have IT strategic plans ? If yes, how successful are they?

.....

….....

.....

.....

3. What are the key factors for the successes of your IT Strategies ?

.....

….....

.....

4. Who or which section of your organization plays an important role in making the IT strategic plans? Are CEO's or other administrators involved in the process and how?

.....

….....

.....

….....

….....

5. Are they analyses of links between the organization's IT strategic plans and business strategic plans?

.....

….....

.....

.....

….....

6. Does your organization have resources and IT capabilities management? How?

.....

….....

.....

.....

….....

7. How does your organization use IT to support its core competencies?

.....

….....

.....

.....

8. How does your organization use IT to increase its performance?

.....

….....

.....

.....

….....

Thank you for your kind

Rachadaporn Pinrattananont

nok_2104@hotmail.com

Biography

Name – Surname	Mrs. Rachadaporn Pinrattananont
Date of Birth	21 November 1961
Address	Faculty of Business Administration, Rajamangala University of Technology Isan
Education	M.S. (Applied Statistics), National Institute Of Development Administration, Thailand, in 1992 B.S. (Statistics), Ramkhamhaeng University, Thailand, in 1985
Experience Work	Assistant Researcher at Petroleum Authority of Thailand (1985 - 1986) Lecturer at the Department of Business Computer, Faculty of Business Administration, Vongchavalitkul University, (1987 - 1990) Assistant Manager at Infoserve Company Limited, (1992 - 1994) Lecturer at the Department of Information System, Faculty of Business Administration, Rajamangala University of Technology Isan, (1995 - present)
Telephone Number	+66-044-233-000 ext. 3650-2, 061-9695893
Email Address	rachadaporn_p@mail.rmutt.ac.th, nok_2104@hotmail.com

Declaration

This work contains no material which has been accepted for the award of any other or diploma in any university or other tertiary institution and, to the best of my knowledge and beliefs, contains on material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the university library, being available for loan and photocopying.

Rachadaporn Pinrattananont