Impact of Information Systems Performance on Enterprice Performance Using Resource-Based View Framework

Amelia Setiawan *(Author)*
Economic Faculty
Parahyangan Catholic University
Bandung, Indonesia
e-mail: setiawan.amelia@gmail.com

Abstract **-- Nowadays, as the competition between companies increase, companies that are in competition cannot avoid from changes of the environment that made the companies have to respond in order to stay in competitive position. Information systems, including information and communication technology have transformed business practices and enable collaborative working. Meanwhile, among the academics, the field began developing, proved by the emergence of new courses related to these fields in the universities. Various studies conducted to understand what the determining factor of a successful information system. Both tangible and intangible factors were studied in order to examine, whether there is a relationship, either directly or indirectly between information systems with competitive advantage. This paper aims to examine the factors that influence the success of an information system and ultimately affect corporate performance and competitive advantage. Based on the literature study conducted, it was concluded, development of information systems should include a strategic element in the design of information systems to produce a strategic information system. A strategic information system is considered to produce a strategic capability to gain sustainable competitive advantage.**

Keywords: competitive advantage; resourced-based view; information systems performance; information system; strategic information systems

I. INTRODUCTION

This paper is a literature review related to the topic of the performance of information systems in general and the accounting information systems in particular and their effects on firm performance. Resource-based view approach used to perform this analysis. This paper is divided into five main sections: introduction, literature study, discussion and analysis, recommendations for further research, and conclusions. The introduction consists of two parts: the underlying background of writing, followed by the formulation of the research question.

A. Background

At the present time, the companies in competitive position, can not avoid development and environmental changes to remain on its competitive position.

According to Uhlenbruck et al., 2003, as cited by Lee, Chu, & Tseng [1], sophistication of information and communication technologies (ICTs) have changed production, coordination activities and data processing. It is also supported by Akhavan et al, 2006 and Attaran, 2004 as cited by Lee, Chu, & Tseng [1], ICT also influence the shape of business practices by collecting and analyzing information, developing a strategic vision, finding the best approach to process redesign, enabling collaboration and teamwork.

Among the academics, the field of information technology, and information systems (IS), began developing, marked by the emergence of new courses related to these areas in many colleges. Studies in the field of IS began growing rapidly since the 1950s when the use of computers in data processing.

Various theories are used to examine different perspectives of information systems, in the 1990s, researchers in the field of information systems theory began emphasizing the use of resource-based view (RBV) theory because it considers sufficient emphasize to accommodate the need of information systems as a resource to supports the company's success. In the 2000s, the concept of RBV was developed by adding the concept of the ability to maintain a competitive advantage through the concept of dynamic capabilities.

A better understanding of the role of IS in building competitive advantage and the concept that every company has various different resources to support competitive advantage that is hard to duplicate is the basic reason why this research needs to be done.

The concept of dynamic capabilities, according to Teece, Pisano, & Shuen [2], arising from the weakness of the RBV concept that ignores the factors that affect resource. Dynamic capabilities is adopting a process approach.

Process approach is done by acting as an intermediary between the company's resources and changes in the business environment. According to Teece, Pisano, and Shuen [2], dynamic capabilities help companies to customize the use of a combination of resources in producing sustainable competitive advantage. RBV emphasizes resource selection and emphasizing on the development of dynamic capabilities and resource renewal.

According to Wade & Hulland [3] IS resources strongly influence the various attributes of dynamic capabilities, therefore very useful for companies operating in the environment that changes rapidly. Therefore, although the IS resource indirectly influence the company to win the

competition, but it is a very important factor to maintain a competitive position in an unstable environment.

Background for this research is depicted infigure 1.

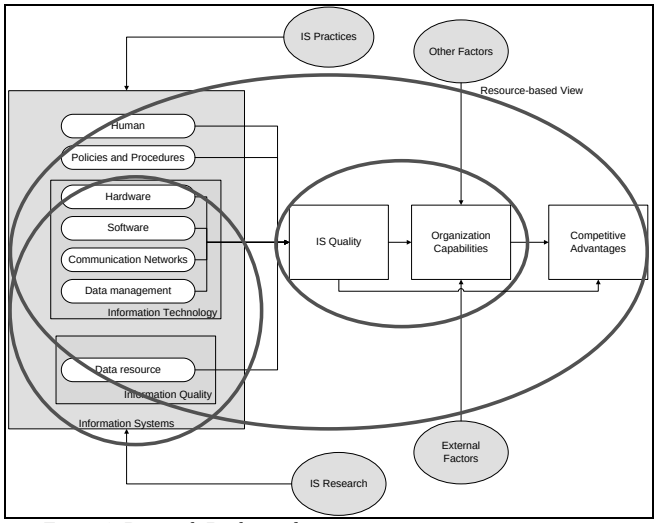

Figure 1. Research Backgroud

B. Research Questions

This paper is divided into five research questions (RQ) that will underlie the literature search. Research questions in this paper are as follows:

- RQ 1: Is the quality of Information Technology (IT) capabilities affect the company that uses information systems?
- RQ 2: Is data quality influence capabilities of enterprise information systems?
- RQ 3: What influences the quality of information system capabilities of information systems?
- RQ 4: Is the quality of information systems affect the capability of the company?
- RQ 5: Is the quality of the information system influences the formation of competitive advantage?

II. LITERATURE STUDY

A. Resource Based Theory

RBV concept first introduced by Wernerfelt, and then by Barney & Clark [4] popularized as the Resource-Based Theory through his book Resource-Based Theory. RBV concept is based on the identification of corporate resources that aims to identify the factors affecting the company in achieving competitive advantage. According to Barney & Clark [4], not all the company's resources support competitive advantage. To achieve competitive advantage, a resource must meet four attributes: (1) valuable, (2) rare, (3) are not easily imitated and (4) should be used for processes that occur within the organization.

Based on research conducted by Barney & Clark [4], resources that meet the attributes and support the company's competition are as follows: (1) culture, (2) trust, (3) human resources, and (4) information technology.

B. Information Systems

According to Avison&Heje [5]. information systems is a relatively new discipline. Information system was introduced in the 1950s when the use of computers to process data started being [5].

According to Hussein, 2004 as quoted by Dalabeeh & ALshbiel [6], accounting information systems (AIS) is defined as an important part of management information systems in business economics unit which collects financial data from sources inside and outside the economic unit, then operate the data and convert it into useful financial data to users inside and outside the economic unit. Makhadmeh 2007 as quoted by Dalabeeh & ALshbiel [6] defines AIS as a set of financial and human resources in the organization who are responsible for preparing the financial information and provide that information to all managerial levels for planning and monitoring purposes in the organization. It can be concluded that the AIS includes individuals, information technology and procedures that control work, where all the components interact with each other to produce useful information for making the right decision.

A strategic AIS, has the advantage of its ability to provide information for management and other decision makers in making decisions of a strategic nature. An information system that are primarily strategic AIS, according Mollanazari & Abdolkarimi [7], must have characteristics that can distinguish the following information: (1) scope (which includes external, nonfinancial and future orientation), (2) timeliness (ability to provide information when needed and the system automatically collects data for reporting), and (3) Aggregation (summary information for a particular period and a summary of information for various management areas).

C. Information Systems Quality

There are varoius terms to describe the quality of an information system. Some use the term IS Success, IS Performance and Sophistication.

Based on the model developed by Raymond and St-Pierre [8], organization sophistication will impact the organization in two groups: operational performance (cost, quality and flexibility) and business performance (net margin, return on assets and the perceived profitability).

Meanwhile, DeLone & McLean [9] proposed a model to describe the structure of the dependent variables that affect the success of information systems based on studies in the 1970s-1980s. This model illustrates that the quality of information and quality systems together affect the use and satisfaction of users that will have an impact on the individual, that will have impact on the organization. This model was revised by the authors ten years later DeLone & McLean [10] by adding a new dimension to produce a new model by incorporating elements of service quality with

istrument: (1) information systems that have the hardware and software up-date, (2) the reliability of information systems; (3) information systems that can satisfy the needs of other users, (4) information systems staffs that have the necessary competencies to carry them out and (5) information systems to fulfill the needs of its users.

D. IS Capabilities

According to Abdallah [11], IS capabilities are classified into three groups: (1) the benefits of hardware that includes a central processing unit, input/output devices, memory, hard disk, magnetic tape, and printer, (2) the benefits of which include software and database systems, and (3) the benefits of the system include the number of transactions processed/unit time, the number of programs processed/unit time, system response time, and the extent of damage. Based on the literature study conducted by Whyte & Bytheway [12], research in the field of IS can be grouped into three perspectives: (1) product, which includes a variety of products submitted to the IS users (eg, software and hardware, system documentation and user training system), (2) Process , which includes all the activities that produce the system itself (in the traditional system development, including the system analysis, technical design, programming, testing and delivery of the system to the user), and (3) Service, which deals with issues related to services (eg, answering user questions, solving problems related to the system, and generally handle focus and user requirements).

Studies in the field of IS, was originally focus on the product viewpoint. Various studies related to success and failure of the system are focused more on tangible attributes and product characteristics of the system, such as system response time, the volume of data and the level of use of the system. The researchers focused on tangible attributes such as the number of errors that occur in the process and the level of user engagement. Based on the literature study conducted by Whyte & Bytheway [12], research can be classified based on analytical approaches, which argues that there are four broad categories but overlap and are supported and illustrated by many other authors: technical approach (Brooks, 1975; Casher, 1984; Hughes 1986; Huling, 1987; Kaniper, 1986; Kuzman, 1989; Morreale, 1985; Simon & Davenport, 1987; Viskovich, 1988; Yaffe, 1988); behavioral approach (Carroll, 1982; Doll, 1985; Jones dan Kydd, 1988; Necco , 1989; Pinto dan Slevin, 1987; Tait dan Vessey, 1988); organizational approach (Ginzberg, 1980; Rademacher, 1989) and interactive approach (Kydd, 1989; Skyrme & Earl, 1990).

Meanwhile, Chalasani & Sounderpandian [13] claimed some success in the infrastructure requirements of a computer-based system based on e-commerce: (1) a consistent data representation, (2) collaboration between partners, (3) security between partners, (4) support for automated data exchange, and (5) the reliability of the system.

Although much of the literature reveals the importance of conducting a formal evaluation of the information system in order to carry out the development of the information system performance and system development process, but in practice, this is rarely conducted, as the results of the study by Kumar, 1990 as quoted by Palvia, Sharma, & Conrath [14].

Palvia, Sharma, & Conrath [14] classify the quality of information systems, into two important parts in accordance with the socio-technical approach: (1) technical classification covers the work performed and IS technology (IS itself), and (2) social classification includes human and organizational. IS work performed includes: (1) Difficulty; (2) Scarcity; (3) Utility; (4) Confidence; (5) Realism; (6) Criticality; (7) Novelty; and (8) Simplification. Technology (IS itself) include: (1) Interactivity; (2) Codability; (3) Operativeness; (4) Speed; (5) Exhaustiveness; (6) Inference; (7) Explainability; (8) Augmentation; (9) Specificity; (10) Precision; (11) Presentation; (12) Compatibility; (13) Documentation; (14) User-friendliness; dan (15) Modifiability. From human perspective, IS quality include: (1) Stimulation; (2) Relief; (3) Non-threatening; (4) Managerial approval; (5) Enthuasiasm; (6) Personnel assistance; (7) Inclusion; dan (8) Expert helpfulness. From organization perspective, include: (1) Bureaucratization; (2) Education; (3) Adaptiveness; (4) Agreement; (5) Innovation; (6) Performance; (7) Feasibility; dan (8) Competitiveness.

III. DISCUSSION AND ANALYSIS

Before further observed on specific variables, this section will first discuss the various studies in the field of information systems. The first part will discuss the theories used in studies in the field of information systems; second part will discuss the evolution of research in the field of information systems during the period 1950-2010, and the last part will discuss research related to information quality. Many researchers tried to classify studies related to information systems, including [5], [15], [16]. Gregor [16] classify research in the field of information systems based on objective: (1) Analysis and description, (2) Explanation; (3) Prediction, and (4) Prescription. While Avison and Pries-Heje [5] classify research in the field of information systems based on research topics: (1) refferrence discipline, (2) external environment, (3) IT, Computer systems and software, (4) organizational environment; (5) IS management; (6) IS development and operations; (7) IS usage; (8) IS types; (9) IS education and research. Meanwhile Huff, Robey, Walsham, & Webster [15] classify research in the field of information systems based on the theory used.

Based on the literature research produced by Banker & Kauffman [17] dan Huff, Robey, Walsham, & Webster [15], it can be concluded, that the theories are equally used in research related to information systems and the management of the economy are: (1) Real options theory,

(2) Transaction cost economics; (3) Diffusion of Innovations theory, (4) media richness theory; (5) Resource-based view of the firm and (6) Socio-technical theory.

This paper focuses on the use of RBV approach. As can be seen in the previous section, that is quite a lot of research in the field of IS which use RBV approach, in addition, based on research conducted by Kamyabi & Devi [18], this research uses *Trasaction Cost Economics* (TCE) because TCE is considered to be an approach most widely used to explain why a firm chooses to manage a function (eg accounting function) alone or internally, but there are companies who choose to outsource the functions that are external to a professional service provider. Then, the study continued to use the concept of RBV.

RBV is considered as an appropriate approach to the source separation is performed in the act of outsourcing companies. Thus, TCE is used to measure which one is more profitable, while the RBV, based on the competition point of view, determining, what are the vital resource to gain a competitive advantage. Bulkley and Alstyne [19] examined the effect of IS on productivity. Based on this study the IS is affecting productivity are as follows: (1) more accurate information to improve the quality of decisions, (2) the centralization of decision-making that can produce consistent, global perspective, and to avoid duplication, (3) increased productivity that can distribute optimal control, (4) the right incentives to encourage the spirit of sharing information, promoting the productivity of the group, and (5) increased efficiency due consideration to balance resource allocation between the problems and opportunities.

A. Relationship between IS and Strategy

Naranjo-Gil [20] citing research conducted by Langfield-Smith (1997), that there is a relationship between strategy and AIS, which indicates that the AIS is one of the consequences of the strategy. Several studies conducted by Chenhall (2003) and Gerdin and Greve (2004) as quoted by [20] has confirmed that AIS plays a proactive role in the management strategy, acting as a mechanism that enables an organization's strategy. Research conducted by Naranjo-Gil [20] attempts to connect the AIS with the company's strategy choice. This study distinguishes four patterns of organization based strategies: Defenders, Prospectors, Analyzers and Reactors. Fiegener (1994) as quoted by Gil [20] AIS also found to play an active role in the management strategy, dynamic strategy to ensure alignment, ensure that the strategy remains effective over time and integrates the entire organization's strategy into tactical plan organization.

According to Chenhall and Morris (1986) and Gul (1991) as quoted by Naranjo-Gil [20], AIS designs can be grouped according to the characteristics of output. Chenhall and Morris (1986) as quoted by Gil [20] explained that there are four attributes of information: the scope, timeliness, level of aggregation, and integration. Scope refers to the measurement used and to the extension of AIS in space and time; focusing on future events or history; external than internal events, or in terms of monetary and non-monetary. Timeliness refers to the frequency, speed and orientation information reporting (eg short or long term). Aggregation refers to the way data is collected in a period of time, according to the model function or decision. Integration refers to the need of providing information in reflecting the interaction and coordination of multiple functions within the organization.

According to Miles and Snow (1978) and Abernethy and Guthrie (1994) as quoted by Naranjo-Gil [20], firms with more risky strategies, such as prospectors, will be more likely to use accounting information more widely, in order to examine the environment and meet the demands of the market. Based on this study, it was found that the result of sophisticated AIS will most influence on organization with prospectors strategy. AIS sophistication affect performance indirectly, through prospectors strategy.

According to Naranjo-Gil [20], AIS measure sophistication by using a modified version of the scale developed by Chenhall and Morris (1986) by asking questions in four dimensions: (1) Scope, (2) timeliness, (3) aggregation, and (4) Integration.

B. Relationship between IS and Organization Performance

The relationship between information systems and organizational performance can be described as figure 2.

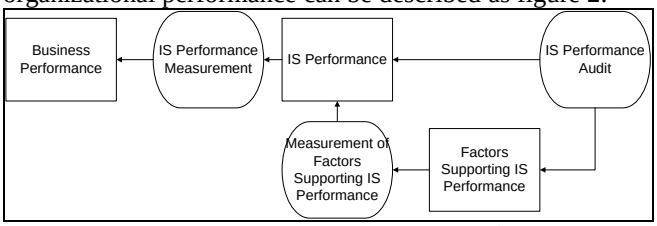

Figure 2. Relationship between IS and Organization Performance

Based on the literature study conducted by Sakaguchi & Dibrell [21], although a view research done on the relationship of the performance of the IT strategy, there are two streams of research: the flow of strategic information systems and strategic impact of IT investment on firm performance. Both streams are interrelated, because it gives a better understanding of how IT affects corporate strategy and how IT affects firm performance. Associated with the first flow, strategic information systems (SIS) or the use of information systems as a competitive advantage, Sakaguchi & Dibrell [21], argues that studies in this stream is developed and studied from the perspective of the majority of domestic (eg, Rackoff et al, 1985; Lederer and Sethi, 1988). Porter, as cited by Sakaguchi & Dibrell [21] develop a framework for the implementation of SIS, which consists of several dimensions of strategic IS applications: five competitive forces (bargaining power of customers, bargaining power of suppliers, new entrants, substitute

products/services and competitive rivalry), and option strategies (low cost leader, differentiation and innovation).

While the next flow, strategic impact of information technology on a performance improvement company is Bender, 1986, as quoted by Sakaguchi & Dibrell [21] claiming that it is difficult to quantify the expected benefits of information processing systems. The results showed that the economic benefits of the automated system was evaluated by measurement involving all company expenditures for information processing.

According to Neely & Cook [22], AIS is a transaction processing system that is fundamental. Therefore, studies should be developed to support the role of SIA in practice in the business world. Neely & Cook [22] reveals research agenda for the field of accounting with emphasis on quality factor data and information. Based on the literature study in 1994-2008, it can be concluded that the studies related to the quality of data and information can be grouped into four categories: (1) people and decision making, (2) governance; (3) operations and (4) technology.

In recent decades, the RBV of competitive advantage is one of the popular approaches to assess the strategic role of an information system, Zhang [23].

A different research is from Bacharach & Board [24] which focuses on electronic information that can be obtained easily on the internet of the present period. Quality assessment is accomplished on a macro level, which the government is considered instrumental in creating quality information by providing democracy or freedom of speech.

Based on behavioral research, it is considered that the provider of such information is likely aware to maintain quality of the information group.

However, from the research Sakaguchi & Dibrell [21], the greater IT investment could lead to lower corporate performance and the results of this study are considered confusing for readers.

Many performance measurements can be selected by management to use in the organization. However, not all performance measures that are commonly used can be applied to the measurement of IS performance. According to Huang & Lee [25], traditional methods of performance measurement focuses on the financial measures that are widely known, such as Return on Investment (ROI), net present value and payback period. We need a measurements that are considered less financially that are appropriate to measure the performance of intangible assets that are IT-enabled. Therefore, in this section shall be disclosed alternative performance measures to gauge the performance of information systems.

Based on research of Huang&Lee [25], the strategy associated with the IS performance is as follows: (1) Learning and growth perspective, (2) Internal process perspective, (3) Customer perspective, and (4) Financial perspective.

C. Research Model

This literature study is as follows: (1) based on the research model, there are four variables to be studied: (1) human, (2) policies and procedures, (3) IT and (4) data resource, but in this study, only two will be discussed: (1) IT and (2) data resource, (2) based on these variables to be further investigated relationships or linkages between these variables; (3) based on the relationship between these variables was made conclusions that can answer the problem formulation and research questions.

Based on formulation of the problem as mentioned in the previous section, the relationship between variables and the research model for the study of this literature can be described as figure 3.

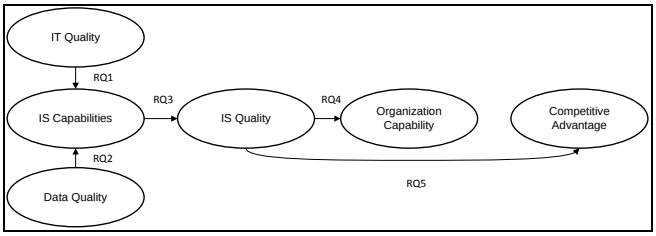

Figure 3. Research Model

D. IT Resource and Competitive Advantage

Research conducted by Aranyossy [26] using the concept of RBV to examine the relationship between corporate resources (in the form of assets and capabilities to sustainable competitive advantage). RBV associated with IT focuses on the identification and classification of a strategic IT resources (or IT related) and their relationship. Results of this research is the influence of IT data sources of competitive advantage and operational efficiency. This study also reveals the need to examine multi-dimensional measurement associated with resources and capabilities. The research model for the first research question can be modified as shown in Figure 4.

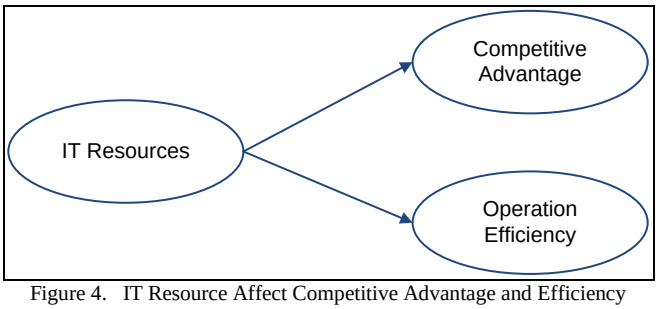

Figure 4. IT Resource Affect Competitive Advantage and Efficiency

E. Data Quality and IS Capability

According to Sabherwal [27], IS depends on the success of a six aspects: (1) the quality of IS, (2) information quality, (3) the use of IS, (4) IS user satisfaction, (5) individual impact, and (6) organizational impact. The sixth

aspect is based on research conducted by Sabherwal [27] associated with the three stages of development of the IS: (1) the quality of IS and the quality of the information related to the development of IS, (2) use and user satisfaction, and (3) the impact of individual and organizational impacts associated with the exploitation of the system. Based on the explanation above, the model of research related to the research questions that can be modified as illustrated in Figure 5.

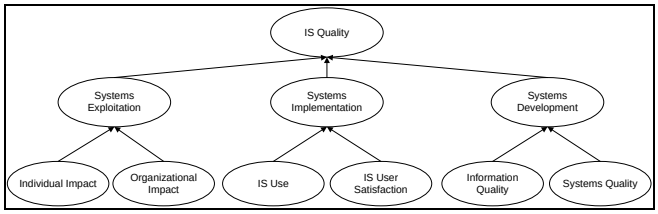

Figure 5. IS Quality Factors

F. IS Capability and IS Quality

Research conducted by Soudani [28] of the companies listed on the Dubai Financial Market reveals that AIS are very useful and have a significant impact on organizational performance. However, there was no relationship between AIS with performance management. Therefore, based on this study, the research model for the third research questions can be modified as in Figure 6.

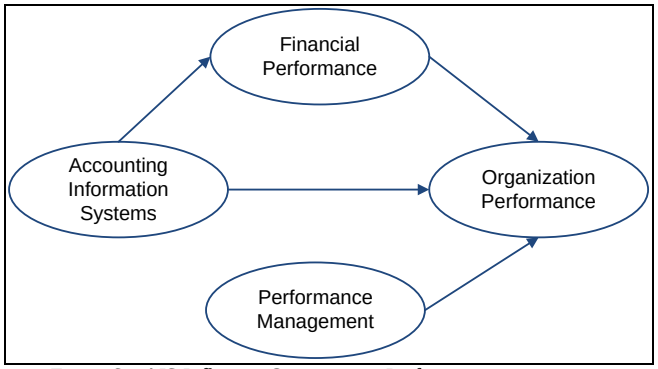

Figure 6. AIS Influence Organization Performance

G. IS Quality and Company's Capability

According to Kivijirvi & Saarinen [29], investment in IS indirectly affect financial performance in the short term. However, the investment made by the company will lead to maturity of IS which will ultimately relate to the performance of companies. Benefit of IS investment will affected in the long run because of the period of development and learning system that takes quite a long time. Based on this study, the benefits of IS investments depends on the amount and type of the company and also its financial strategy. The conclusion from this study is that the investment in the SI does not directly guarantee profitability, but the use of IS will support the achievement of the company's strategy and ultimately supports sustainable competitive advantage.

Therefore, to answer the original research model, the fourth research questions can be described as shown in figure 7.

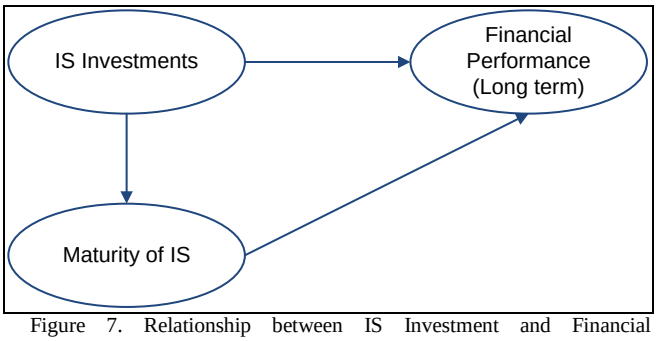

Figure 7. Relationship between IS Investment and Financial Performance

The concept of maturity of the IS is also discussed by Salleh, Jusoh, & Isa [30] to explain IS sophistication and characteristics. According to Salleh, Jusoh, & Isa [30] IS maturity is reached if the company can utilize the resources optimally and IS integration is perfect. One of the characteristics that the IS in the company has reached a stage of maturity is the fulfillment of the three main categories: (1) technological sophistication, (2) organizational sophistication, and (3) system performance. So based on the research model Salleh, Jusoh, and Isa [30], the model should be modified as illustrated in Figure 8.

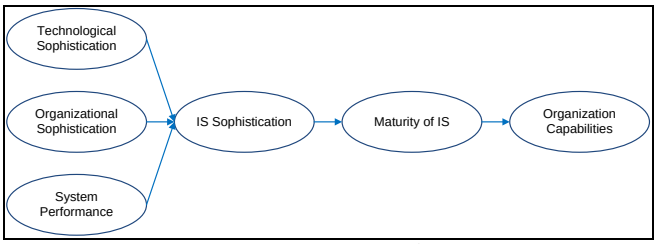

Figure 8. IS Sophistication and Maturity of IS

H. IS Quality and Competitive Advantage

Based on the literature study it can be concluded that the information system is one of the significant sources of my company. According to Salleh, Jusoh, & Isa [30], IS sophistication is one of the company's resources that are comprised of three dimensions: (1) the extent to which SI used, (2) the intensity of use of SI, and (3) integration of SI. According to Bardhan, Krishnan, & Lin [31] studies linking organizational performance IS with more emphasis on evaluating the business value of an IT based investment has been issued, if the term used IT capital, IT investment is to be equipped with other views, such as software capabilities at the business process level.

Zhang [23] sought to assess the IS as a corporate resource that must be completed by the three types of organizational resources: (1) organizational structure and culture, (2)

vertical integration and related diversification, and (3) knowledge and information. However, the conclusion of a study conducted by Zhang [23], lead to the conclusion that together with resource SI significantly affect organizational performance only knowledge and information, while vertical integration and related diversification effect, but not significant, while the structure and culture of the organization it is not in accordance with the initial hypothesis because it found no effect .

I. Modified Research Model

After literature study, the modified research model is as figure *

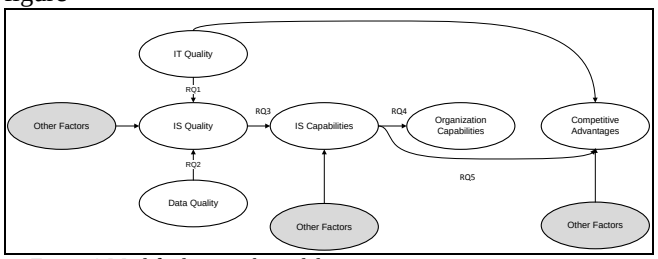

Figure * Modified research model

IV. RECOMMENDATION FOR FURTHER STUDY

Based on research conducted by [32], development of research in this area will be developed to: (1) Resources, dynamic capabilities, and knowledge; (2) Corporate governance; (3) Management buy-outs and venture capital financing; (4) Institutional environment; and (5) Entrepreneurship.

According to research by Lee, Chu & Tseng [1], three types of dynamic capabilities that are closely related with ICT adoption are as follows: (1) organizational innovation, (2) willingness to conduct knowledge sharing, and (3) learning.

V. CONCLUSSION

Based on a literature study that has been done, it can be concluded as follows:

1. IT data sources affect the competitive advantage and operation efficiency.
2. IS depends on the success of a six aspects: (1) the quality of IS, (2) information quality, (3) the use of IS, (4) IS user satisfaction, (5) individual impact, and (6) the impact of organizational
3. AIS are very useful and have a significant impact on financial performance and organizational performance. Organizational performance is affected by accounting information systems, performance management and financial performance.
4. IS investment is not directly guarantee profitability, but the use of IS will support the achievement of the company's strategy and ultimately supports sustainable competitive advantage. IS Investment will directly affect maturity of IS. Long term financial performance will be affected directly by IS investment and maturity of IS. Financial performance will affect profitability of a company.
5. Technological sophistication, organizational sophistication and sustem performace will affect IS sophistication and ultimately will affect organization capabilities.
6. IS quality is affected by IT Quality and data quality. IS Quality will support IS capabilities. IS capabilities will support organization capabilities and competitive advantages.

REFERENCES

[1] Y.-C. Lee, P.-Y. Chu and H.-L. Tseng, "Corporate performance of ICT-enabled business process re-engineering," *Industrial Management & Data Systems*, pp. 735-754, 2011.

[2] D. J. Teece, G. Pisano and A. Shuen, "Dynamic Capabilities and Strategic Management," *Strategic Management Journal*, pp. 509-533, 1997.

[3] M. Wade and J. Hulland, "Review: The Resource-based View and Information Systems Research: Review, Extension and Suggestions for Future Research," *MIS Quarterly*, pp. 107-142, 2004.

[4] J. B. Barney and D. N. Clark, Resource-Based Theory, New York: Oxford University Press, 2007.

[5] D. Avison and J. Pries-Heje, Research in Information Systems, Burlington: Elsevier, 2005.

[6] A. e.-R. k. e.-. Dalabeeh and S. O. ALshbiel, "The Role of Computerized Accounting Information Systems in Reducing the Cost of Medical Service at King Abdullah University Hospital," *Interdiciplinary journal of Contemporary Research in Business*, pp. 893-900, 2012.

[7] M. Mollanazari and E. Abdolkarimi, "The Effects of Task, Organization and Accounting Information Systems Characteristics on the Accounting Information Systems Performance in Tehran Stock Exchange," *International Journal of Innovation, Management and Technology*, pp. 443-448, 2012.

[8] L. Raymond and J. St-Pierre, "Antecedents and performance outcomes of advanced manufacturing systems sophistication in SMEs," *International Journal of Operations & Production Management*, pp. 514-533, 2005.

[9] W. H. Delone and E. R. McLean, "Information system Success: The Quest for the Dependent Variable," *Information Systems Research*, pp. 60-95, 1992.

[10] W. H. DeLone and E. R. McLean, "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update," *Journal of Management Information Systems*, p. 9–30, 2003.

[11] M. H. Abdallah, "An integrated approach for system evaluation: study results," *Information Management & Computer Security*, pp. 10-19, 1996.

[12] G. Whyte and A. Bytheway, "Factors affecting information systems' success," *International Journal of Service Industry Management*, pp. 74-93, 1996.

[13] S. Chalasani and J. Sounderpandian, "Performance benchmarks and cost sharing models for B2B supply chain information systems," *Benchmarking: An International Journal*, pp. 447-464, 2004.

[14] S. C. Palvia, R. S. Sharma and D. W. Conrath, "A Socio-Technical Framework for Quality Assessment of Computer Information Systems," *Industrial Management & Data Systems*, pp. 237-251, 2001.

[15] S. Huff, D. Robey, G. Walsham and J. Webster, "Theories Used in IS Research Reference Library," York University, New York, 2006.

[16] S. Gregor, "The Nature of Theory in Information Systems," *MIS Quarterly*, pp. 611-642, 2006.

[17] R. D. Banker and R. J. Kauffman, "The Evolution of Research on Information Systems: A Fiftieth-Year Survey of the Literature in Management Science," *Management Science*, pp. 281-298, 2004.

[18] Y. Kamyabi and S. Devi, "The Impact of Accounting Outsourcing on Iranian SME Performance: Transaction Cost Economics and Resource-Based Perspectives," *World Applied Sciences Journal*, pp. 244-252, 2011.

[19] N. Bulkley and M. V. Alstyne, "Why Information Should Influence Productivity," Center of eBusiness @MIT, 2004.

[20] D. Naranjo-Gil, "The Role of Sophisticated Accounting System in Strategy Management," *The International Journal of Digital Accounting Research*, pp. 125-144, 2004.

[21] T. Sakaguchi and C. C. Dibrell, "Measurement of the intensity of global information technology usage: quantitizing the value of a firm's information technology," *Industrial Management & Data Systems*, p. 380–394, 1998.

[22] M. P. Neely and J. S. Cook, "Fifteen Years of Data and Information Quality Literature: Developing a Research Agenda for Accounting," *Journal of Information Systems*, pp. 79-108, 2011.

[23] M. J. Zhang, "Assessing The Performance Impacts of Information Systems from the Resource-Based Perspective: An Empirical Test of The ndirect Effect of IS," *Journal of Business Strategy*, pp. 141-164, 2007.

[24] M. Bacharach and O. Board, "The Quality of Information in Electronic Board," Kluwer Academic Publisher, Netherlands, 2002.

[25] S.-M. Huang and C.-L. Lee, "Balancing Performance Measures for Information Security Management - A Balanced Scorecard Framework," *Industrial Management & Data Systems*, pp. 242-255, 2006.

[26] M. Aranyossy, "Resource-based Analysis of E-commerce Business Value," *Business Value of Information Technology*, pp. 1-14, 2011.

[27] R. Sabherwal, "Information Systems Success: Dimensions and Determinants," University of Missouri, St. Louis, 2011.

[28] S. N. Soudani, "The Usefulness of an Accounting Information System for Effective Organizational Performance," School of Accounting and Management, Islamic Azad University U.A.E. Branch, Dubai, 2012.

[29] H. Kivijirvi and T. Saarinen, "Information System and Company Performance," *Information & Management*, pp. 143-163, 1995.

[30] N. A. M. Salleh, R. Jusoh and C. R. Isa, "Relationship between Information Systems Sophistication and Performance Measurement," *Industrial Management & Data Systems*, pp. 993-1017, 2010.

[31] I. Bardhan, V. Krishnan and S. Lin, "A Model to Measure the Business Value of Information Technology: The Case of Project and Information Work," *Company Resources and Information System*, pp. 1-20, 2011.

[32] J. Barney, M. Wright and D. J. Ketchen, "The Resource-Based View of the firm: Ten years after 1991," *Journal of Management*, p. 625–641, 2001.