

Strategic Information Systems and Inter-Organizational Systems

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Abstract—Management must have true and accurate and trustworthy information that reflects various measures of company performance. Without information the activities taken to use strategy control will be very subjective and only have a small chance to consistently improve company performance. Information systems and organizations as places for their application interact and influence one another. Information systems must be designed to be able to serve the needs of important groups in the organization and will be shaped by the structure, tasks, targets, culture, politics, and management of the organization.

The information systems department is a formal unit within the organization that is responsible for the functioning of the organization's information system. Strategic information system is an information system that implements a competitive strategy that provides a competitive advantage for the company through internal efficiency and comparative efficiency so as to help the company provide significant performance gains and improve its long-term performance.

Computer-based or manual, formal or informal strategic information systems can perform this function by providing information services needed by top management. Information is the main source of successful control strategies.

Index Terms—Strategic, Information Systems, Inter, Organizational Systems, Strategic Decisions.

I. INTRODUCTION

Current information systems play an important role in business and organizations. Through technology and information systems, organizations can gain a strategic advantage in the current tight competition between businesspeople. In order to achieve this, a strategic planning in information technology is needed. Through strategic planning that is dynamic and flexible, an organization can look objectively at internal conditions. Information systems are very important for the existence of a company.

The development of information and communication system technology will affect public sector organizations to improve economic growth, national stability, and public welfare. Information is data that is processed into a form that is more useful and more meaningful for those who receive it. With the information, it is expected that the system can be useful for users. The system itself is a collection of elements that interact to achieve a certain goal. The system needs to be developed by compiling a new system to replace the old system as a whole or improve the existing system.

external, so that it can anticipate changes in the business environment and be able to survive in increasingly fierce

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business competition. Business competition is now so sharp that strategists are forced to expand planning horizons and to make decisions with greater uncertainty. As a result, more information must be obtained and assimilated to formulate, implement, and evaluate strategic decisions. In a competitive situation, the side with the best intelligence (information) usually wins. The computer allows managers to evaluate large amounts of information quickly and accurately. The use of the internet, the World Wide Web, e-mail and search engines can now distinguish which companies use up-to-date information and foreign ones to make strategic decisions. Information systems strategic planning is a systematic approach to determine which is most effective and efficient with regard to satisfying the fulfillment of information needs. Strategic planning and information technology systems are needed to prepare the organization in planning the use of information technology and systems for its organization. Planning

This is needed to adjust the organization's steps in accordance with the vision of STIKOM Uyelindo Kupang to become a superior, leading, best, trusted Computer College. And carrying out the mission of Tri Darma Higher Education based on information technology that can adapt to global changes, develop information systems or computerized systems that are globally competitive.

Strategic Information Systems (SIS) are support for existing systems and help in achieving competitive advantage over organizational competitors in terms of objectives. Information systems can affect the business activities of an organization or company as a whole so that it can help companies in business competition with others.

This results in a long-term (strategic) information system, an information system that supports or forms the competitive and strategic position of business organizations or companies.

Thus, strategic information systems can be any information system (TPS, SIM, DSS, etc.), which uses information technology to help organizations gain competitive advantage, reduce competitive weaknesses, or to meet other strategic organizational goals.

With the application of information technology organizations or companies can improve operational and management performance. Technologies such as office automation, factory automation, transaction processing systems and database management systems affect the quality of the organization.

The information system for an organization's chairman is very important for both small and large organizations or companies. A chairman must identify the types of systems that can serve as strategic advantages for his organization.

But until now new information systems have played very little role in the production, distribution and sale of products and services. Increased productivity of the information process makes it slightly different in organizational productivity.

In this case there are several supporters of information technology that can be used as assets by an organization in the long run, for example;

a. Human Resources, that is the managers in charge of planning and developing information technology in a company, so that these staff really have responsibility for the operation of information technology.

b. Technology, All information technology infrastructure, including software and hardware is used together in the company's operational processes.

c. Relations is the relationship of information technology with the company's management as a decision maker.

Office automation (OK) all major formal and informal electronic systems are concerned with communicating information from people inside and outside outside the organization or company. The function (OK) is to facilitate all types of communication both verbally and in writing, providing better information for making a decision.

II. LITERATURE REVIEW

2.1 Strategic Information Systems

Strategic information system is an information system for competitive advantage, which is a development of the function of information systems in general, namely to create efficiency and effectiveness in decision making. The information system at the strategic level is known as the executive information system (SIE) which is used to assist managers to carry out strategic planning.

The difference between a strategic information system (SIS) and another conventional information system (SIK) is:

1. Support

SIK supports managers to complete critical operations in the company, while SIS supports managers in implementing strategies.

1. Focus

The focus of SIK is to use technology to replace human labor, while SIS is focused as a competitive tool.

2. Purpose

The aim of SIK is more towards efficiency, whereas SIS is to win the competition.

3. Orientation

SIK is more oriented towards internal applications, while SIS is oriented internally & externally to reach consumers.

There are three general strategies used by companies to win the competition, namely cost leadership, differentiation, and focus and other strategies are innovation, alliance, growth and quality. The following discussion of the strategy:

1. Cost Leadership Strategy

Information systems are said to support this strategy if the company is able to achieve the lowest cost position in the industry, by engineering business processes, lowering costs from suppliers, and reducing costs to customers.

2. Differentiation Strategy

Information systems are said to support this strategy if they can provide products or services that are unique and able to provide more value to customers compared to other competitors, namely by: utilizing information technology to create different products or services, and reducing the differential advantage of competitors.

3. Focus Strategy

Information systems are said to support this strategy if it can help companies focus on specific products or services in the organization.

4. Innovation Strategy

Information systems are said to support this strategy if they can find a specific way of doing business, namely by providing products or services with the latest innovations.

5. Alliance Strategy

The information system is said to support this strategy if it can create beneficial cooperative relationships both with suppliers, other companies and even with competitors.

6. Growth Strategy

Information systems are said to support this strategy if they are able to develop and diversify markets.

7. Quality Strategy

Information systems are said to support this strategy if it is able to help improve the quality of products or services.

2.2 Models for Implementing Strategic Information Systems

Some of the implementation of strategic information systems are as follows:

1. Competition Pressure Models

In general competition there are 5 (five) types of threats which are at the same time an opportunity, namely threats from existing competitors, threats from new competitors, threats from substitute products or services, threats from bargaining power from customers, and threatening bargaining power from suppliers. . These five things can also be an opportunity if the right strategy is implemented, for example by means of cost leadership, differentiation or other strategies.

2. Competitive Strength Model and Competition Efficiency

Threats in this model consist of two sources, namely bargaining power and competition efficiency, these two sources are determined by 5 (five) factors: search costs, unique product features, switching costs, internal efficiency, and efficiency between organizations. The three initial factors are bargaining power and the next two factors are comparative efficiency.

3. Value Chain Models

In this model the company's activities are divided into 9 (nine) activities which are grouped into 2 (two) main activities, namely: 4 (four) supporting activities including company infrastructure, human resource management, technology development, and procurement of goods, and 5 (five)) main activities include handling and storing raw materials, operations, handling and storage of finished goods, sales and marketing as well as after sales services.

4. Five Stages of Porters & Pillars

There are five stages to explore the strategic opportunities of the five stages including assessing the intensity of information, determining the role of information technology in the structure of the industry, identifying and ranking the ways in which information technology makes strategic profits, investigating the possibility of information technology in developing new businesses, and making a plan to take advantage of information technology.

5. Keen's Model

There are 2 (two) factors in this model namely reach (indicating the location of the information technology system whether within the company or outside the company), and scope (indicating the extent of its application).

6. Re-engineering Model

Is a model that shows that re-engineering can be done on internal or external processes.

7. Benefits Model

This model separates strategy orientation internally or externally based on the benefits to be received. This model states that SIS internally has direct benefits to the company, and SIS externally will provide benefits directly to customers and indirectly to the company.

8. Consumer Resource Cycle Model

In this model there are 13 (thirteen) stages of the customer resource cycle based on the IBM 4 stage model, namely Requirements (determining needs and specifying specifications), Acquisitions (selecting resources, ordering, authorization and payment, and obtaining, testing and receiving), Liability (integrating, monitoring, updating and maintaining), and Termination (moving or discarding, and liability).

Success & Failure Factors of SIS Implementation

Some factors that can support the success of implementing SIS include:

1. The organization must have a vision of information technology.
2. Information technology planning must be parallel with the company's strategic planning.
3. In implementing SIS, it must be the first in its industry.

4. Creatively attract the term and scope.

In addition to the success factors mentioned earlier, factors that have resulted in the failure of the application of SIS, these factors include:

1. The company is unwilling or unable to sustain investment in the future.
2. Information technology for SIS does not fail, because the failure can be embarrassing, lowering products and services, thereby reducing the company's image.
3. The application of SIS can lead to lawsuits and violations of regulations.
4. The timing of the application of SIS is not quite right.
5. Inadequate quality of SIS resources
6. Industry differences
7. Alliances can be competitors
8. Cultural differences.

2.3 Interorganizational Information Technology Systems

Inter-organizational information system is a strategic information system that also connects not only units within the organization but also between organizations, for example SIS connects companies with suppliers and companies with customers on-line. As in the aviation industry, namely airlines, travel agents and consumers are connected to a network of airline ticket order systems.

One type of inter-organization information system is electronic data interchange (EDI), which is the use of a standard computer system in several separate organizations to be able to send data electronically through business documents. Common business documents communicated through EDI are purchase orders, sales orders, price list requests, insurance claims and others. There are several advantages of implementing EDI, namely:

1. Speed up business activities.
2. Reduction of working capital needed.
3. Cost savings.
4. Improve relations with customers & suppliers.
5. It is possible to carry out international trade.

III. DISCUSSION

cost leadership strategy

An information system is said to support a cost leadership strategy if it can reach the position as the producer with the lowest cost without reducing quality in the industry. Companies that carry out this strategy for example are as follows.

a. J. B. Hunt of Lowell, a trucking company from Arkansas, uses computers connected to the fuel commodity market to monitor fuel prices at all times and buy at the lowest price, because fuel costs represent 18-35% of the total costs.

b. Roadway Express is also a trucking company that has its own fuel pump nationally. Using a computer, the company compares the prices of fuels offered by suppliers and buys the lowest fuels.

c. 7-Eleven is a retail network company in the United States headquartered in Huston, Texas. 7-Eleven Japan is a franchise in Japan by the Ito-Yokado company. 7-Eleven Japan in 1992 made a 40% profit of \$ 680 million from sales of \$ 1.44 billion. Profit like this is an extraordinary profit even though it is also in Japan. 7-Eleven uses a \$ 200 million information technology system. The first goal of this information technology system is to find the customer's desires and determine the products that must be provided in stores. Because land is very expensive in Japan, shop space is also very

expensive. 7-Eleven also connects its inventory systems electronically with suppliers to implement a just-in-time approach, so as to get very significant cost savings.

d. Caterpillar Company (CAT) is a heavy equipment company located in Peorian Illinois. The company faced heavy competition from heavy equipment companies in Japan, Komatsu, which offered bulldozers to the United States at 40% cheaper prices, so that in 1985 CAT was unable to compete and suffered losses. Then CAT decided to install a \$ 2 billion information technology system with satellite media, resulting in a reduction in the cost of the inventory in the process, when it was ordered. And CAT regained competition by 30%.

Differentiation Strategy

An information system is said to support a different strategy or differentiation strategy if it can provide a different or unique product or service with greater value to customers than its competitors. The strategy can be carried out by the company by identifying which dimensions are most important according to customers and then looking for ways to add value that is different from those of its competitors.

This different strategy can be done in the following way:

1. Using information technology to make different products or services,
2. Using information technology to reduce the differential advantage of competitors.

Companies that carry out this strategy, for example Digital Equipment Corporation (DEC). DEC uses an expert system called X-Con to configure the computer system ordered by the buyer. With this system DEC can offer computers but with different configuration specifications in accordance with the wishes of consumers. However, X-Con has now been abandoned by DEC due to the rapid development of the configuration of the computer industry which resulted in a combination of computer configurations becoming numerous.

Focus Strategy

An information system is said to support a focus strategy (focus strategy) if it can help companies focus on specific products or services in a niche specifically on the market. This focus strategy can be separated into two focus, which is as follows.

1. Focus cost (cost focused) or focused low cost (focused low cost), which is the company trying to get the lowest cost advantage in a particular segment.
2. Different focus (differentiation focus) or focused differentiation (focused differentiation), which is a company trying to differentiate its products or services compared to competing products and services in a particular segment.

Ritz Carlton Hotel also applies a different focus strategy to serve its guests. The hotel uses an information technology system called "class" to identify information about its guests, including the choice of a particular wine brand, the local newspaper from the guest and the direction facing the window. Guest preferences are obtained at check-in and from the comments, suggestions and criticisms provided in the room. For example, the preference of guests stored in the "class" computer is to like roses, then this hotel will provide roses according to their preferences in the guest room every stay at this hotel.

Innovation Strategy

An information technology system is said to occupy an innovation strategy (innovation strategy) if it can find a specific way of doing business, namely, by providing the latest innovation products or services that have not been done by competitors. This strategy can be done in the following ways:

1. Creating a new market by involving information technology systems, for example is merril lynch in collaboration with bank one to produce a new innovation product known as a cash management account (CMA),

2. Creating a new way of selling products and services involving information technology systems, for example is McKesson Drug Corp., American Hospital Supply Company (AHSC), American Airline.

Examples of companies that use an innovation strategy are as follows.

a. Merrill Lynch and Bank One see the desire of capital market and money market customers to get an integrated report on their funds, how much is in the money market, how much is there in the capital market and how much is on the way to transfer. They know a new product called Cash Management Account (CMA). By joining this program, consumers will become both capital market and money market customers and will receive integrated financial statements.

b. McKesson Drug Company uses an electronic order system called econost that was used starting in 1975. Consumers from McKesson are dispensaries and drug stores that order by telephone, fax or on line. This order was then forwarded to the IBM 3090 mainframe computer. The profit gained by two parties, namely McKesson and also consumers. The benefits gained by McKesson are a fast and reliable order system, reduction of order recipients from 700 people to 15 people, personnel productivity increase in warehouses up to 17%, customers become loyal because they are locked with profits or customers will be burdened with switching costs if they moved to buy from other distributors. The advantage of the customer is the savings in time costs, accuracy costs, convenience costs and cheaper pulse fees.

Alliance Strategy

Information technology system strategy is said to support the alliance strategy if it can create a profitable partnership (information partnership) with suppliers, other companies and even with its competitors. This strategy can be done for example by using information systems between organizations, namely connecting information systems of companies that are allied.

Companies that carry out this strategy for example are Merrill Lynch in collaboration with Bank One, WalMart in collaboration with P&G, 7-Eleven Japan in collaboration with its suppliers and others.

Growth Strategy

An information technology system is said to support a growth strategy if it helps develop and diversify markets. Examples of companies that carry out this strategy, for example, are Citicorp, which used ATMs the first time in New York City to get many new customers.

Quality strategy

An information system is said to support a quality strategy (quality strategy) if it can help improve the quality of products and services. This strategy can be carried out as follows:

- Using robots, CAM or CIM to improve product quality,
- Using information technology for continuous improvement.

IV. CONCLUSIONS

Strategic information system is an information system or any information system at any level that supports or implements a competitive strategy that provides a competitive advantage for the company through internal efficiency and comparative efficiency so as to help the company provide significant performance. Computer-based strategic information systems or manual, formal or informal can perform this function by providing information services needed by top management. In order for strategy control to succeed optimally, management must have true and accurate and trustworthy information that reflects various measures of company performance. Without such information, activities that are taken to use strategic control will be very subjective and have little chance of consistently improving company performance. Information is the main source of successful control strategies.

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REFERENCES

- [1] David Hunger, J & Thomas L. Wheelen. 2003. Strategic Management. Yogyakarta: Andi.
- [2] Hari Purnomo, Setiawan and Zulkieflimansyah. 2007. Strategy Management. Jakarta: Faculty of Economics, University of Indonesia.
- [3] Jogiyanto. 2006. Strategic Information Systems For Competitive Advantage. Yogyakarta: CV. Andi Offset.
- [4] Bagranoff, Nancy A. Simkin, Mark G. & Norman, Carolyn Strand. 2010. Core concept of accounting information systems. 11th Edition. Jhon wiley & sons, inc.
- [5] Bagranoff, Nancy A. Simkin, Mark G. & Norman, Carolyn Strand. 2012. Core concept of accounting information systems. 11th Edition. Jhon wiley & sons, inc.
- [6] Bodnar , George H. & William S. Hoopwood. 2010. Accounting Information Systems, Tenth Edition. NJ: Prentice Hall.
- [7] DeLone, Wiliam H. Mclean, Ephraim R. 2003. The DeLone and McLean Model of Information Systems Success: A ten Year Update, Journal of Management Information Systems. Volume 19, No 4, pp. 9-30.
- [8] Deloitte Access Economics. 2015. SMEs trigger Indonesia's progress: Nusantara Growth Instrument. Management Report.
- [9] Fidel, R. (1984) "The case study method: A case study" *Library and Information Science Research*, 6(3), pp. 273-288.
- [10] Jeffrey A. Hoffer, Mary B. Prescott, Fred R. Mc.Fadden, Modern Database Management, Eight Edition, 2007, Pearson Prentice Hall.
- [11] Galliers Robert D. And Dorothy E. Leadiner. 2009. Strategic Information Management Challenges and Strategies in Managing Information System Fourth Edition This Edition published 2009 by Routledge 270 Madison Ave, New York, NY 10016.
- [12] Hall, James A. 2011. Accounting Information System. Sixth Edition. South Western : Cengage Learning.
- [13] Hair, J.F.JR. Bush, R.P and Ortinau, D.J. 2003. Marketing Research Within a Hall James A.2011. Accounting Information System. 7th Edition: South-Western Publishing Co.
- [14] <https://iprice.co.id/trend/insights/laporan-kuartal-i-2018-industri-e-commerce-indonesia/>
- [15] Heidmann, Marcus. Schaffer, Utz & Strahringer, Susanne. 2008. Exploring the Role of Management Accounting Systems in Strategic Sensemaking. Information Systems management. Volume 25. Pp.244-257.
- [16] Horan T A, Abhichandani. 2016 " EGOVSAT: Toward a Robust Measure of E- Government service Satisfaction in Transportation," International Conference on Electronic Government, Ottawa, Canada.
- [17] Hurt, Robert L. 2008. Accounting Information System: Basic Concept & Current Issues. McGraw Hill.
- [18] Jogiyanto, H.M. (2010). Portfolio Theory and Investment Analysis. Seventh Edition. BPFE. Yogyakarta.
- [19] Jogiyanto, H.M. (2011). Business Research Methodology. Fourth Edition. BPFE. Yogyakarta.
- [20] Gelinas, Ulric J. dan Dull, Richard B.. 2012. Accounting Information System. International Student Edition. Thomson South Western.

- [21] Laudon, K C. & J P. Laudon. 2007. *Managemen Information System : Managing The Digital Firm*. 12th Edition. NJ: Prentice-Hall.
- [22] Laudon, K C. & J P. Laudon. 2012. *Managemen Information System : Managing The Digital Firm*. 12th Edition. NJ: Prentice-Hall.
- [23] Mcleod, Jr. Raymond dan Schell, George P. 2007. *Management Information Systems*. Tenth Edition. Pearson Prentice Hall. New Jersey.
- [24] McLeod, Raymon & Schell, George P. 2008. *Managemen Information Systems*. 10th Edition. Pearson Prentice Hall USA.
- Meiryani. 2016. *Influence Of Uncertainty and Risks On The Information System*. *International Business Management*. Volume 10, Issue 9 : 1575-1580, 2016. ISSN : 1993-5250.
- Meiryani; Bambang Leo Handoko; Sasya Sabrina; Edwin Hendra. 2017. *The Influence of Leadership Styles on Accounting Information Systems Quality and its Impact on Information Quality Survey on State-Owned Enterprises*. *IEEE Xplore, Ei Compendex*. 2017- Oktober, pp. Page (s): 1989-1993. Publication Year : 2017.
- [25] Meiryani; Azhar Susanto; Dezie Leonarda Warganegara. 2019. *The Issues Influencing of Environmental Accounting Information Systems : An Empirical Investigation of SMEs in Indonesia*. *International Journal of Energy Economics and Policy*. Vol.9,No.1.
- [26] <http://kuantannet.blogspot.com/2018/04/makalah-sitem-informasi-strategic-dan.html>.