EVALUATION OF THE RELATIONSHIP BETWEEN BUSINESS STRATEGYAND INFORMATION SYSTEM STRATEGIES FOR EDUCATION INSTITUTION IN INDONESIA

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Abstract— Strategic planning of information systems is one of the most important aspects to determine the direction and objectives for an organization. With a good strategic planning, the business process of an organization can keep along with the vision that has been planned in the early stages and it also can achieve its intended purpose. Strategic planning for education institution holds substantial part to coordinate the goals which to be achieved by that institution. Nowadays, competition in education industry is very tight, it's very necessary for institutions to have proper strategic planning of each division that influenced business process. According to this situation, the study aimed to evaluate business strategy with information system strategy in order to improve competitiveness value of institution compared to the other. This study begins with data collection by conducting direct surveys and questionnaires to several sample of education institutions. After that, all of data were tabulated into strategic map to show relationship from many derived perspective. As a result, it creates a model to solve common problems that exist in education institutions. In summary, good strategic on education institution can make a positive contribution to the development and achievement the goal of institution particularly.

Keywords : business strategy, information system strategy, educational institution Introduction

I. INTRODUCTION

The proliferation of modern technologies creates a competitive environment in industry filled with innovation to provide the best performance. Even today, application of technology has spread out into many kind areas of business, it caused a company be charged to identify an opportunities and to evaluate it against existing business model, then finally to pursue any action that suitable with business strategy. Strategic decisions about implementation of technology both directly and indirectly affect to the profits of a company.
Information Systems (IS) are now integrated with almost every aspect of business line because it can help to simplify company activities and process. While early IS implementations were clearly focused on the automation of clerical and repetitive task, it continous to grow in other business process. Collaborating IS in business process, requires the ability of IS leader to elaborate and manage it extensively in order to obtain maximum benefits. It also must be aligned with the organizations perspective. If the company's IS failed to support its organizational systems, the impact is misalignment of the resources needed to achieve its goals [1]. For the reason, information system strategy should be compatible with its organization strategy that consist of fundamental elements of business.

The key success of the company is how the company stimulate business strategy to drive both organizational strategy and IS strategy. IS strategy itself is affected by changes in a business and organizational strategies. To accommodate the need for support operation, changes in the IS strategy must be continued by changes in the organizational strategy. Therefore business, IS, and organizational strategy must constantly be adjusted in parallel. A simple framework for understand the impact of IS on organizations can be described in figure 1.

Figure 1 Information Systems Strategy Triangle [1]

Business strategy consists of mission, objective, purpose, and goals to indicate what target to accomplish by company. Organizational strategy includes people, work process environment, organizational structure, and planning to achieve business goals. Then, Information systems strategy is the plan to implement information services in accordance with business process. Those strategies must be collaborated to establish enterprise wide architecture.

The development of the education field is rapidly stimulating the education business struggling to maintain or even increase the competitive value in the same industry [2]. This condition caused the information system role emerged as an important discipline to support operational and to help management take the right decisions in an educational institution. The main objective of education institution is to provide service for student in academic field. With synchronization this objective and technology, it enable organization to shape business strategy reach performance targets that can help to ensure that an organization is accomplishing its mission. The mission or vision statement in organization may be relevant for long term period, until it appears unattainable or insufficiently challenging in changing circumtances.

The planning process requires discussion with all staff to achieve mutual understanding about business process. Deciding on tools to use in the planning process is not a simple process. Most processes also include situation analysis to analyze the internal and external influences. The intended result of the planning process is to attain IS Strategy [3]. The benefit of achieving strategic fit is that it should ensure IT can add valued to product or services, which turn on management efficiency through cost control and competitive position [4]. Because of that focus, a company can reinforce the standard and procedures across different division.

Strategies is a set of coordinated actions to achieve anything they need to be implemented, such as objectives, purpose, and goal [5]. This requires that adequate resources are obtained and allocated effectively with the appropriate organization and responsibilites. There is a difference between having an IS strategy and an IT strategy that is making a contribution to the initialization of business value. The IT strategy is concerned with outlining the vision of how the organization's demand for information and systems will be supported by technology, but IS strategy defines the organization's requirement or demand for information and system to support the overall strategy of the business [5]. Once that strategy has been combined, an implementation plan can then be build into IS/IT planning. The IS/IT strategy refers to both planning and formulation of technology. The IS/IT strategy determine IS/IT planning. The process does not always occur sequentially but there may be overlap. Large organization in different businesses of functins may be at different order.
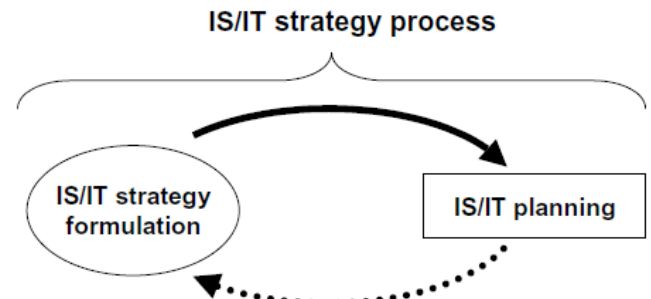

Figure 2 IS/IT Strategy Process

Many organizations have adopted a combination of planning techniques to support their planning process [3]. The most popular planning techniques that can be used are stages of growth, Critical Success Factor, Competitive Forces Model, Value Chain Analysis, Three Emerging Forces, E-Business Value Matrix, Linkage Analysis Planning, and Scenario Planning [6]. For this study using competitive forces model and value chain analysis.

II. MATERIALS & METHODS

In analyzing the process, many organizations utilize a collaboration of approaches to get a single best approach and nearly impossible to be implemented [3]. The planning strategy process can become complicated. For this study follows an empirical method. Data were collected in a questioner to members of education institution, with relevant parties that involved (IT Staff, lecture, and student). This method enabled us to explore information about organizational structure and situation. After that, we map the questioner result into IS/IT strategic model to identify the right option and a business that must be linkage in organizational with a substantial level of sophistication in information management.

In preparation for the strategic planning that proper with company profile, a wide range observation and research must be adopted. The result of the planning process is Information System strategy that concerned with applications and platforms to be implemented. The implementation strategy will describe what organizational change will be needed to deploy IS strategy successfully. The most common aims organizations implementing an IS/IT strategy process are [5]:

- Aligning IS/IT with the business process to identify where IS/IT major contributes and determine priorities for investment
- Obtaining competitive advantage from business opportunities created by using IS/IT application
- Building a cost effective, with implementation of technology infrastructure for the future

- Sharing knowledge to the appropriate resources and competencies to deploy IS/IT successfully across the organization.

If IS/IT strategy-formulation process has not become established, it need to undertake initiatives to build awareness through the deliberate application of IS/IT in support of its critical business needs. The process should introduce the required discipline thus define planning resource requirement. However, the IS/IT strategy process needs to become an integral part of the development of business strategy.

III. RESULTS AND DISCUSSION

The changing environment of IS includes numerous issues and challenges that must be considered from internal and external level. These changes need supporting competencies for IS leaders to decide what leveraging process as competitive advantage properly. One assumption that every decision maker needs to be understand is that there is pervasive ambiguity throughout strategic decision making because the environment is dynamic this caused strategic managers are less capable of making precise forecasts about the future [7]. Because of that a company requires the right strategic planning to focus on vision and mission. In this study, we try to explore education institution as an object research.

Education institutions involved in this study both of private and public institution. For each institutions data was collected in questionnaire according to identify corporate strategic planning, including vision, mission, involvement of IS, and management.

The stages of strategy formulation for effective utilization of IS/IT is not simple. It needs to satisfy critical functional that are probably include in strategic systems. Model of strategic planning for information systems and information technology in this study is divided into [5]:

1. Internal business environment

   Internal business environment consists of: current business strategy, objectives, resources, processes, culture and value of business. To analyze internal business environment this study using value chain analysis. The value chain model divided into the main activities and the support activities that add values into business segment. The main activity is the activity that is directly related to the core business of the institution. The support activities are activities that complement the main activity. All of education institution generally has the same activities, begin with admission then continued with the academic process.
   We have classified the activities in education institutions into several main activities, there are:

- Admission system, this activity includes the following sub activities : registration for new students, entrance examination, payment of registration fee
- Academic activities : Academic data management, include : lecture data, student data, scheduling, examination, report of student academic
- Collaboration and partnership: Cooperation with industry, alumni association, government scholarship, professional services, corporate governance, etc.
- Lecture resources management : Lecture recruitment, training and workshop, assessment
- Community services: Counseling to small and medium enterprises (SMEs), training to community, workshop new technology.
- Financial management : Payment transactions, monitoring budget, financial reporting
- Information technology : Infrastructure, hardware, software, information system
- Procurement : Monitoring of inventory, supply of inventory
- Human resources management : Employment, managing personnel data, attendance report, reward and benefit
  According to the classification of main and support activity, the following are segmentation of the activity in education institution commonly based on questionnaire results:
- Major Activities
  Admission system, academic activities, collaboration and partnership, lecture resources management, and community services
- Supporting Activities
  Financial management, procurement, human resources management, and information technology

2. External business environment
   The factors that include in this aspect are economic conditions, industrial environment, government policy, competition among institution, etc
3. Internal IS/IT environment
   The current condition of Information System and Information Technology perspective in the business, maturity, scope of business, contribution, skills, resources, and technological infrastructure.
4. External IS/IT environment

It consists of technology trends and opportunities and the function of information system and information technology to others, especially customers, distributor, competitors, and suppliers.

5. Business strategy

This aspect describes about how IS/IT to support business objectives and application portfolio for the business unit and business models in education institutions. IT not only change organizations structured, it also profoundly affect the way to control the organizations. Management control systems must respond to the objective of organizations. Measurements must be taken periodically to achieve the best performance. Generally, IS have three important roles in management control process [1]:

- Data collection. This data helps managers determine realization of the organization's mission as reflected in its stated objective.
- Evaluation. IS provides the analysis of information that compares current performance with the desired performance.
- Communication. The flow of information can be delivered as fast as user need. This allows the analysis of the situation to be real and up to date fit to actual condition.

6. IS/IT Management strategy

This element of the strategy to ensure a consistent policy to apply IS/IT. According to the analysis in several education institutions, management strategies can be simulated as follows:

- Corporate contribution
  In conducting business process activities, education institution must be realized about how to organize budget and manage corporate saving to achieve optimal performance.
- User orientation
  User has the important role to decide what they need to support their activities. The system should enhance a capability of users in order to accomplish their job.
- Operational excellence
  The system must be able to guarantee the security and privacy of data. Furthermore, effectiveness and efficiency of IT infrastructure also have to consider in order improving the quality of service.
- Future orientation
- Knowledge and experience is the precious thing in company to maximize the

performance management. Therefore need to be built a system that collects it, as an example knowledge management system.

7. Information Technology strategy

It consists of policies and strategies in the management of technology and specialist resources. For an example create of a user right, procedure to operate the system, standard operation, etc.
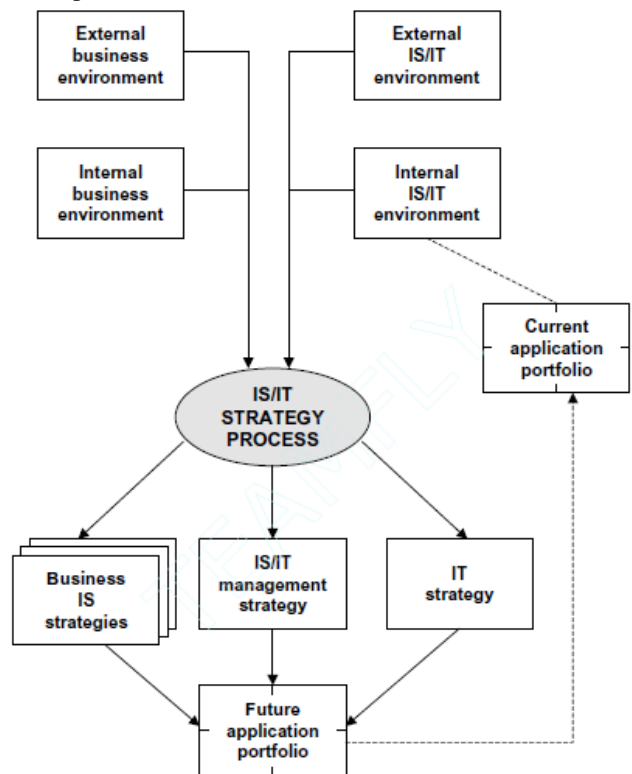

Figure 3 The IS/IT strategic model [5]

After the key point of information strategic system planning were identified, the next step is investigate and evaluate of information system strategic planning techniques to justify supporting the IS leader make decision. These drivers have been simulated as criteria of evaluation to categorize the association of business strategy in IS implementation. The IS can be supporting element in order to achieve an objective that company specify in the beginning as Key Performance Indicator (KPI) that oriented with result.

The accumulated criteria of business IS demand is convert into recommendations for the development of IS/IT planning both short term and long term. The outputs can be delivered from this study:

Short term planning

- Increasing service of quality & best practice for any area of business process

- Development of human resources (staff, lecture, etc) both technical skill and soft skill
- Documentation for all application system

  It needs to keep documentation of application that developed in institution because it possible to enhance the application in the future need.
- Training for user

  User is an important role to control system compatible with transaction in organization. Therefore, users need to be trained as well their job, so they can easily operate the new system.
- Research and Development Business Process
- Reward and Benefit System

  A company needs an employee to achieve vision and mission, but we must realize about reward and benefit that comply with them.
- Utilization of social media and forum that allows its member to create public account with their interests, posting news/status, sharing with list users whom connected, and view other account. Popular social media services are Link In, twitter, facebook, etc.

Medium & Long term planning

- Cloud computing

  There are several significant advantages by this cloud process. All participants can upload and keep the information anywhere dan access it whenever they want. There is a time saving feature to facilitate the process.
- Mobile Computing

  Mobile computing is one of technology driven approaches, help organization with speed, efficiency, and communication.
- Cooperation in research with external companies

  Relationships between companies often lead to strategic advantage. It should be recognize the fact that technologies facilitate relationships, whether the relationship with internal or external. In this way, IS support level the competitive for partnership in research area.
- Development Adaptive Platform

  The increasing use of information systems responsible for the developing the adaptive platform that can help organizations fit with business process.
- Apply to Certification ISO 177799 : 27002

  Standardization of ISO can help institution to organize the structure of company properly and suitable with the procedure in ISO qualification.

IV.   CONCLUSIONS

Most organizations now realized that IS has an important role in today's business environment because the rapidly changing of technology development and highly competition in education business. Devising a strategy

combine with IS/IT in this era is accepted as a major issues to automate planning tools and connected into strategic system developments. To guide education institution have the proper information system to support business process is that the planning details process must be aligned with organizational and business plan in that organization. When education institution wants to create information system strategic planning, they should have frameworks that contain the planning techniques in dynamic and adaptable to achieve the objective [8]. The frameworks organize business aspects that necessary to construct the ISS. There are no shortcuts to arrange the strategic planning process. Internal and external environment need to be considered and the overall necessity of technology and information systems must be determined to align with business plan. Obviously, business performance is dependent on the process that decides the appropriate strategy to implement. The implementation should be systematic with an understanding of the circumstances and the environment.

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