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**STRATEGIC IMPLEMENTATION OF PLANNING IN INFORMATION SYSTEMS AND INFORMATION TECHNOLOGY IN "XYZ HIGH UNIVERSITY**

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**Abstract:**

Information Technology Strategic Planning is a derivative of an institution's Strategic Plan (Renstra). The purpose of this research is to find the need for Information Systems and Information Technology (IS / IT) for institutions with a case study method of the Strategic Plan "XYZ College". The research begins with an analysis of the "PT XYZ" external and internal business environment to determine the five forces model and critical success factors. Next is an analysis of the external and internal IS / IT environment in order to determine world technology trends and the current application portfolio of institutions. The next stage is the strategic process (IS, IT, and IS / IT management). The final stage is to determine the institute's future IS / IT applications. The results achieved are recommendations for the IS / IT application portfolio that "PT XYZ" should have.

**Keywords:**

Strategic analysis, application portfolio, strategy process, Renstra-IT.



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**INTRODUCTION**

Modern institutions need an IT Strategic Plan to provide support and alignment to their Strategic Plan. The role of IT in supporting the achievement of the Strategic Plan can be strategic, so that a solution is needed to find the gap between IS / IT that is already owned and what it should be. This study aims to apply this argument through a case study at "PT XYZ" with the formulation of the problem of finding gaps between existing IT and what should be provided by "PT XYZ" based on the IT Strategic Plan concept.

Like any other technology, IT also has positive and negative sides. A technology can be a means of improving performance and achieving goals. But on the other hand, technology can have the opposite effect, so it must be managed wisely. (Silanegara, 2010)

A. The need for an IT strategic plan: According to Earl, quoted by Indrajit (Indrajit, 2005), the reason why an institution needs to develop its IT in a planned manner is to avoid the following possibilities:

1. IS and IT development that is not in line with the institutional strategy.
2. Development of IS and IT that is not patterned (sporadic) so that there is no integration between the existing sub-systems (not integrated, not holistic, and incoherent).
3. Implementation of IS and IT that does not bring benefits to the stakeholders concerned.
4. Allocation of investment funds that are not in accordance with the supposed needs (under or over-investment).
5. Implementing various sub-IS and IT modules that do not pay attention to the principles of priority and criticality.
6. The quality of information systems and information technology is relatively low in terms of the various existing standards.

Some of the problems faced by "PT XYZ" regarding it is IS / IT are as follows:

1. The system has not been fully integrated in one door, so that data reporting is still through several reporting systems such as student academic activities that have not been integrated with the student financial system, thus allowing for lost control in the management of student credits and examinations.
2. The allocation of funds / budgets for IT needs is still middle to low, so the existing facilities are still far from perfect and optimal. For example, the function of SAKTI (Integrated Academic System) "PT XYZ" and the distance learning system (e-learning) "PT XYZ" has not yet been maximized.

3. Data security has not been optimal, both in terms of web and internet network. From the website side, it only relies on security from hosting and standard systems so that there are still many holes and there is concern that data will be stolen or hacked.
4. Internet networks rely on their internet providers, so that lost connections often occur
5. Lack of human resources whose fields are in accordance with their competence. Many jobs are not suitable for the jobdesk.
6. Lack of awareness from outside the IT unit, lack of understanding of the objectives of the technology's implications, integration and automation.

B. The function of IT in the Teaching and Learning Process: Two IT functions in the teaching and learning process in universities have been defined by (Nicol, 2007). First, to help facilitate self-assessment and supportive social and peer processes by the availability of tools that are familiar to students and flexibility in interacting with their peers and with their teaching materials, and second, supporting lecturers with monitoring capabilities for groups who interact online and intervening for straighten out any misunderstandings without creating unnecessary feedback or the domination of excessive and over-teaching discussion. Murthy (Murthy, 2006) concludes by combining the traditional pedagogical system that has been applied in universities with more modern systems such as e-learning, distance / open learning and an outcomes approach to pedagogy.

C. Globalization of Research Activities Through IT: Of the many reasons for the globalization of science and scientific works, two are most to blame: first, the development of IT which created a virtual global community of experts in universities and other scientific sectors; second, the dominance of English as the language of the unification of world academic knowledge, so that everyone can immediately access the latest knowledge if they have the two things mentioned above (Altbach, 2007).

D. IT involvement in Administrative Services: The desired results of the institution when involving IT in its administrative activities are the desired results for efficiency, effectiveness, risk avoidance, customer satisfaction, cost avoidance, and new capabilities. (Kvavik, Robert. B., 2005)

**METHOD:**

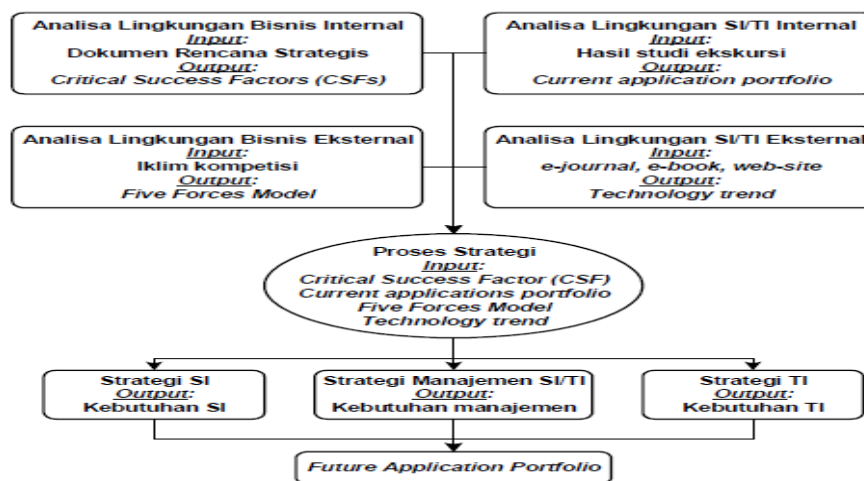


Figure 1 Method Proses Strategy

The IT Strategic Plan research with a case study at "PT XYZ" uses the analysis method and strategic process according to Ward and Peppard (Ward, 2002) as presented in Figure 1.

**RESULTS AND DISCUSSION**

**A. Process Analysis and Strategy:**

In this research, 4 analyzes were conducted to determine the existing business and IS / IT conditions, namely the external business environment which focuses on analysis of institutional competitiveness and bargaining power, the internal business environment which focuses on initiatives and strategic policies of institutions, the internal IS / IT environment. which focuses on a specific analysis of IS / IT institutional conditions, and external IS / IT environment which focuses on analyzing trends in technology that are currently developing. After conducting internal and external analysis, an IS / IT Strategy Process is carried

out to identify appropriate IS / IT that can contribute to the business, assess competitive advantage when using IS / IT, and determine HR competencies and other required resources. The results of the strategy process are input for the preparation of the IS Strategy, IT Strategy, and Management IS / IT Strategy with the output in the form of a gap between the Future Application Portfolio and the Current Application Portfolio.

B. Analysis Method and Strategy Process:

Deliverable for each stage of the research is supported by several methods, namely:

1. Critical Success Factor (CSF): Presents the success criteria of a plan so that it can determine the information needs and IS / IT solutions.
2. Porter's Five Forces Model: Presents a map of the competitiveness and bargaining power of organs outside the institution to predict their IS / IT solutions.
3. Strategic Alignment: In order to maintain alignment between strategies, the business strategy drives the IS strategy which then drives the IT strategy.
4. McFarlan 'strategic grid: Presents a map of the contribution of each IS and IT application to the business:

A. Institutional Analysis:

*Internal Environmental Analysis:*

"PT XYZ" has a vision in accordance with its core and internationalization of excellence in the fields it does. The mission of the institution leads to the activities of every human resource it has to always produce output in the form of graduates who are able to compete and real work that is recognized by the international community. CSF analysis is carried out in each strategic term in the Strategic Plan, examples of implementation are as follows:

1. Expanding community opportunities to become students through regular programs and scholarships.
2. Facilitate the teaching and learning process through the latest infrastructure
3. Speed up the process of identifying competencies in the world of work
4. Accurate in applying competences to the curriculum
5. Maximizing the student learning center approach
6. Encourage lecturers to improve the competence and reputation of their industry
7. Encourage the development of quality and efficient applied research
8. Seize opportunities for strategic cooperation with industry and expertise certification bodies
9. Effective, efficient, accountable and transparent in governance
10. Able to attract industry to recruit graduates
11. Increase the chances of graduates getting their jobs

*External Business Analysis:*

The competitiveness and bargaining power of "PT XYZ" in the core education sector were estimated using the Five Forces model. Competition among institutes. With the even distribution of academic institutions in the form of institutes in Indonesia, the level of competition can be said to be weakening along with distance. Although it is still far enough to become a competitor in terms of recruiting prospective high school graduates, it is a serious competitor in attracting students from national scale industries who want to improve the education of their employees. Meanwhile, for an Institute in the form of a State, only those with a long enough age can be considered as serious competitors such as the Bandung Institute of Technology. An area of competition that must also be watched out for is the job market where the competitiveness of their graduates can narrow the opportunities for "PT XYZ" graduates. The level of competition between institutes for the next 5 years can still be handled by "PT XYZ" so that it is categorized as medium risk.

*The threat of newcomer institutes:*

To set up an Institute requires a very large cost so that what needs attention is a new university with an Engineering Study Program (PS). In addition, the desire of domestic and foreign industries (PMDN / PMA) to establish their own higher education institutions also needs to be observed. With the strength of their capital, it can become a serious threat in the future. Even so, the prediction of the progress of newcomers in the next 5 years, their threat is still categorized as low risk.

*The threat of non-institute universities:*

Non-institute tertiary institutions that have a similar program to "PT XYZ" are the biggest threats so far, especially from public and private institutions with big names and are supported by the reputation of their human resources and other resources. It is undeniable that the dependence of "PT XYZ" with one of them, namely Padjajaran University, is very large and is not contrary to or that Padjajaran University's dependence on "PT XYZ" is not strong enough so it needs special attention. Institutions / industries that have their own BLK / Higher Education can also pose a serious threat to "PT XYZ" with a system of job security and

certification of graduate expertise. The threat of substitute products from non-institutional educational institutions can be categorized into high risk.

*Bargaining power of student suppliers:*

Although high school is the main supplier of students, the assessment of the bargaining power of suppliers is on the interest of graduates and their parents in "PT XYZ". High school graduates (SMU, SMK, MA) who register to "PT XYZ" tend to fluctuate so that they become a serious threat to the continuity of some study programs and become an illustration of the decreasing bargaining power of "PT XYZ" in the eyes of prospective students. Two other areas that "PT XYZ" lacked attention were industries / agencies wishing to send their employees to school and D3 alumni who wanted to increase their bargaining power in the workplace. The threat of supplier bargaining power can still be predicted in the next 5 years so that it is included in the medium risk category.

*Bargaining power of graduate recruiters:*

The success of "PT XYZ" depends on the ability of its graduates to compete and get jobs that are relevant to the field of study they are engaged in during college. A special strategy is needed in dealing with industries from home and abroad that will recruit graduates from the educational process at "PT XYZ", especially in balancing their bargaining power. This neglect of the world of work of these graduates can weaken the position of "PT XYZ" in a structured manner so that it must be categorized as very high risk. Internal SI / IT "PT XYZ" and External IS / IT Environment.

B. Process Strategy The results of the environmental analysis are valuable information for developing a future IS and IT strategy for the institution. The IS strategy generates IS requirements, and the IT strategy is driven from the IS strategy so that the IS / IT strategy initiatives and objectives for "PT XYZ" are:

1. Optimizing the existing network backbone and expanding it to buildings that do not have it by improving the fiber optic network to return to 100% functioning.
2. Extending network access to all network sharing areas by facilitating all study areas and student breaks (class, lab, canteen, hallway, etc.) with wireless access points, and facilitating each teaching desk, research area, work space lecturer and administrator table with extended mode.
3. Developing and perfecting ERP (enterprise resources planning) for integrated institutional application systems, by providing repositories and self-service web for interface and transaction facilities.
4. Build a virtual learning environment for institutions (ICT-centers) for e-learning facilities with e-simulation facilities (online skill practice), e-Collaboration (e-portfolio tools), e-Distance (distance learning)
5. Enriching the "PT XYZ" Website to be more informative and interactive.
6. Facilitating all stakeholders with institutional e-mail addresses.

IS / IT Management Strategy: The management strategy covers the general elements of the application of the IS / IT strategy to all parts of the institution and ensures that the policies to be implemented are consistent with these strategies, especially regarding whether the Department / Division / Unit develops its own IS strategy that will operate. using institutional IT supplies.

*Application Portfolio*

In order for the IS strategy to support and align with the business strategy, the IT needed for "PT XYZ" is Enterprise Resource Planning (ERP) as the foundation for implementing the institution's enterprise systems, Information and Communication Technology (ICT) as the institutional virtual learning environment, Website which is enriched with links to online applications. In order for the SI strategy to support and alignment with the business strategy, the SI required for "PT XYZ" is as follows:

*Strategic Applications*

Strategic applications are those that are indispensable for the organization's future business strategy. The strategic applications required by "PT XYZ" are:

1. E-Resources; portal on ERP for policy makers at "PT XYZ" to better understand the development of the institution because it is equipped with tools capable of analyzing data and assessing the performance of a process to provide information for decision making.
2. E-SPMI; a web-based information system to facilitate the process of implementing the internal quality assurance cycle in tertiary institutions starting from setting quality standards, self-evaluation, internal quality audits, to seeing quality developments within a certain time span. eSPMI will increase the time efficiency and effectiveness of the implementation of quality assurance in higher education and reduce the use of paper (less paper).

3. SI-Competence; portal on ERP for lecturers to be more accurate in analyzing the suitability of the curriculum with the latest industry competencies.
4. SI-Strategic; portal on ERP for leaders to be faster in reaching new partnerships with industry or certification bodies as well as opportunities to expand the area of existing cooperation.
5. E-Career; portal link on the web-site so that the competence, industry reputation and global competitiveness of "PT XYZ" and its human resources are increased:
6. On-line database of "PT XYZ" graduates to be recruited by industry / society in need and job opportunities from the industry / community to be applied by "PT XYZ" graduates interactively.
7. E-Distance; portal on ICT in order to expand access to education "PT XYZ" for the public, especially for DII graduates who are already working and industry who want to improve the competence of their employees via distance learning facilities.
8. E-Simulation; portal on ICT so that the vocational education process is sharper by means of multimedia / simulations in class to actual work practices.
9. Institutional stakeholder's e-mail; so that "PT XYZ" will be carried away by the success of e-mail owners.

#### *Key Operational Applications*

Applications that are key operational are those on which the organization relies heavily on, and are necessary for today's success. Applications that are key operational required by "PT XYZ" are:

- 1) SI-Academic; portal on ERP, intellectual development & student behavior.
- 2) E-SPMI; a web-based information system to facilitate the process of implementing the internal quality assurance cycle in tertiary institutions starting from setting quality standards, self-evaluation, internal quality audits, to seeing quality developments within a certain time span. E-SPMI will increase the time efficiency and effectiveness of the implementation of quality assurance in higher education and reduce the use of paper (less paper).
- 3) E-Collaboration; portal on ICT for the continuity of the independent task stage to group work (solo-group processes), triggering "shared" material / learning outcomes, spurring the development of the learning community.
- 4) E-RAC; web link on web site, for research assistance center.
- 5) Other administrative SI; is the data material for the e-Resources portal.

#### *High Potential Applications*

Is an application that may be very important in achieving organizational success in the future. High potential applications needed by "PT XYZ" are:

- 1) E-SPMI
- 2) E-References; research database.
- 3) E-Campus mail; mailing-list on website

#### **CONCLUSION**

Modern institutions such as "XYZ College" need a strategic plan in the IS / IT field in order to provide good alignment and support for the overall strategic plan of the organization in supporting the change from institute to university. This research has produced an IS strategic plan, an IS / IT management strategy plan, and an IT strategic plan based on the Ward and Peppare framework which are integrated into a portfolio of future applications. Further research is still needed to assess the balance between changes in customers, internal, financial, innovation from the IS / IT implementation plan with the IT Balanced Scorecard analysis. Further research is expected to be able to analyze and design a system from the conclusions of this research.

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