

# Strategic Plan on Information System Management Learning System Using Information Economy Method

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**Abstract**— Education is an important part of human life, through human education being intelligent, having the ability and confidence to help others as well as themselves. Technology that is developing today facilitates various institutions in supporting educational activities such as learning through the Learning Management System. The application of technology certainly requires good preparation. But it is also worth noting the benefits that will be obtained from the investment applied by the institution. One institution that has a role to educate and educate people is STKIP Setiabudhi, but currently STKIP Setiabudi has not maximized it-based learning system to facilitate the learning process, therefore, it is necessary to reference in applying strategic design of SI / IT and analyze the feasibility of the system to be built using information economic method (IE).

**Keywords**— Education, Learning Management System, STKIP Setiabudhi, Strategic Plan, information economic (IE).

## I. INTRODUCTION

The Strategic Plan is a process carried out to achieve goals in the next five years, and is structured based on strategic understanding taking into account the potentials, opportunities and obstacles that arise. Some Educational Institutions have also begun to draw up strategic plans to achieve achievements that have been determined based on the analysis that has been done.

Currently, STKIP Setiabudhi campus needs AN IT-based learning system to maximize the learning process, the information system currently used by STKIP Setiabudhi named SIAKAD, only the current system is still insufficient for all needs in facilitating the teaching and learning process as a whole, because SIAKAD only facilitates information in the form of grades, filling out study plan cards, lecturer satisfaction questionnaires and lecture schedules. , filling out study plan cards, satisfaction lecturer questionnaires and lecture schedules

In supporting the successful implementation of the information system to be built, STKIP Setiabudhi made a Strategic Sencana (RENSTRA) document, the document is a very important planning document as a guideline in planning performance and budgeting to get results, opportunities and constraints.

## II. LITERATURE REVIEW

### A. Strategic Planning

Strategic planning is the process of selecting the objectives of each organization for strategies and policies in strategic programs that are for their purposes. Strategic planning could also be the process of deciding which programs will be from the organization and know which amount of resources at the time of the long-term program over the next few years. The result of the strategy planning process is a document called a strategic plan that is informed about the programs of the next few years. [Rusniati and Haq, 2014].

### B. Learning Management System

Learning Management System (LMS) or Virtual Learning Environments (VLE) or Course Management System (CMS) is one of the solutions that are useful for students and teachers in the e-learning environment, LMS is also defined as a technology-based Web that helps in the planning, distribution, and evaluation of learning processes.

### C. Information Economic

Information Economics (IE) is a calculation method to obtain economic value from a project from information technology (IT). This method is a development of the traditional Cost - Benefit Analysis (CBA) method. Information Economics aims to connect quantitative and qualitative aspects of the benefits of information technology.

## III. RESEARCH METHOD

### A. Flow and Discussion

The research flow was carried out using model waterfall as in figure 1.

#### 1. Data Collection

At the stage of data collection is carried out identification of research objects that include vision, mission tasks and functions of the organization and business processes that are running and can be used as the basis for the creation of a Strategic Plan SI / IT with the method used is literature studies, interviews, questionnaires and observations

#### 2. IT Strategic Planning

- This stage is done analysis in conducting strategic planning such as SWOT, Critical Success Factor, Value

Chain.Business Model Canvas conducted to find out the current business process in STKIP Setiabudhi.

- External Business Environment Analysis uses PEST(Political, Economic, Social and Technological) to identify external environments that can be business processes in STKIP Setiabudhi.

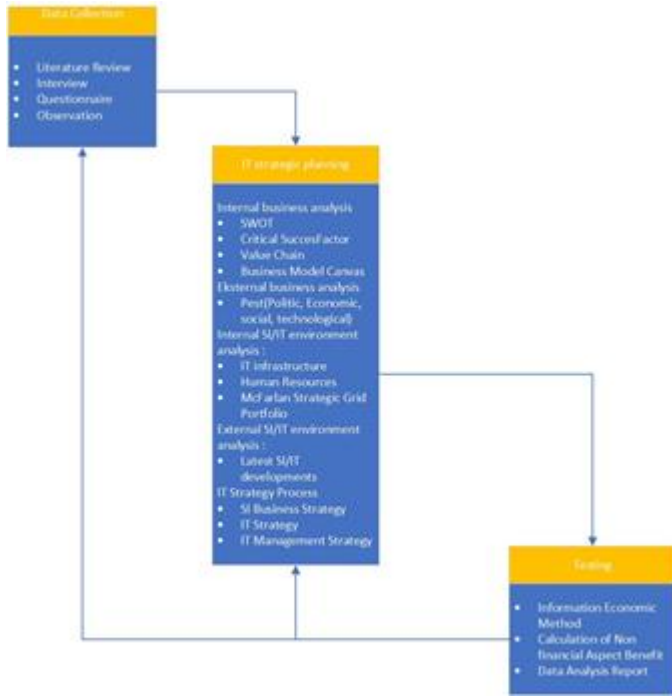


Fig. 1. research flow

- Internal SI/IT environmental analysis based on infrastructure, and Human Resources by using McFarlan Strategic Grid in STKIP Setiabudhi.
- External SI/IT environmental analysis to study the latest information technology developments that can help STKIP Setiabudhi.
- SI/IT Strategy Process created to help STKIP Setiabudhi

3. Testing

Weighting Elements Stages of weighting elements, namely filling out questionnaires using a weighting score approach to the level to critical IT implementation with an ordinal scale in the form of scales that sort data from the lowest level to the highest level or vice versa by not paying attention to the interval of the data.

The scale carried out in this study was divided into two, namely the scale of the questionnaire and the scale of the elements. The scale of the questionnaire is divided into two, namely:

- Respondents' opinion data related to statements to benefit from SI/IT investment in business domains and technology domains. The scale used is as follows:  
0= unidentified  
1= not directly related  
2= not directly related and the benefits have not been felt  
3= not directly related but the benefits have not been optimal

- 4= directly related but not optimal benefits  
5= direct related and optimal benefits

- List of statements to get respondents' opinions on risks in the implementation of SI/IT investments in the form of negative statements. The scale used, namely:  
0 = not risky  
-1= not directly risky, risk management is optimal  
-2= not directly risky, risk management is not optimal  
-3= no immediate risk and no risk management  
-4= direct risk and risk management is not optimal  
-5= direct risk and no risk management

IV. RESEARCH AND DISCUSSION RESULTS

A. Methods Information Economic Internal

The approach stage of Information Economics method in non-financial aspect produces analysis like or not the system that will be made in the form of intangible benefits and risks from the implementation of information systems in STKIP Setiabudhi.

At this stage, it is carried out using questionnaire and observation method at STKIP Setiabudhi.

Assumptions in evaluating investment feasibility:

TABLE 1. The information system to be created

| No | Information Systems           | Description  |
|----|-------------------------------|--|
| 1  | Academic Information System   | This academic information system includes academic services and information activities such as courses           |
| 2  | E-learning Information System | This website can be used by students to see grades, do quis, and submit assignments, as well as contract courses |
| 3  | Procurement                   | Procurement serves for the procurement needed UKM STKIP Setiabudhi   |

Weighting of elements resulting from weighting of elements in Information Economics (IE)

TABLE 2. Weighting on each element

| Evaluator       | Business domain |    |    |    |    | Technology domain |    |    |    |
|-----------------|-----------------|----|----|----|----|-------------------|----|----|----|
|                 | SM              | CA | MI | CR | OR | SA                | DU | TU | IR |
| Bobot Strategic | +               | +  | +  | +  | -  | +                 | -  | -  | -  |
| Value           | 8               | 8  | 8  | 9  |    | 9                 |    |    |    |
| Risk            |                 |    |    |    | 8  |                   | 9  | 9  | 9  |

Results of filling out questionnaires on proposed information systems based on business domain

TABLE 3. Business domain measurement results

| Information Systems           | Modus Score Element |        |        |        |        |
|-------------------------------|---------------------|--------|--------|--------|--------|
|                               | SM (+)              | CA (+) | MI (+) | CR (+) | OR (-) |
| Academic Information System   | 4                   | 3      | 4      | 3      | -4     |
| E-learning Information System | 4                   | 5      | 4      | 4      | -4     |
| Procurement                   | 4                   | 4      | 5      | 4      | -4     |

SM = Strategic Match , CA = Competitive Advantage,  
MI = Management Information, CR = Competitive Response, OR = Organization Risk

Results of filling out questionnaires on proposed information systems based on the domain of technology

TABLE 4. Technology domain measurement results

| Information Systems           | Modus Score Element |        |              |                 |                 | IR (-) |
|-------------------------------|---------------------|--------|--------------|-----------------|-----------------|--------|
|                               | SA (+)              | DU (-) | TU Skill (-) | TU Hardware (-) | TU Software (-) |        |
| Academic Information System   | 4                   | -3     | -2           | -2              | -2              | -1     |
| E-learning Information System | 5                   | -3     | -2           | -2              | -2              | -1     |
| Procurement                   | 3                   | -1     | -2           | -2              | -2              | -1     |

SA = Strategic Architecture, DU = Definitional Uncertainly  
TU = Technical Uncertainly, Infrastructure Risk

Result of calculation of IE Scorecard Value vs Risk

TABLE 5. IE Scorecard Value Vs Risk

| Information Systems           | Value x Weights | Total Risk & Uncertainly | Value | Max Value | Max Risk | Min Value | Min Risk |
|-------------------------------|-----------------|--------------------------|-------|-----------|----------|-----------|----------|
| Academic Information System   | 151             | -90                      | 61    | 210       | 0        | 0         | -180     |
| E-learning Information System | 185             | -90                      | 95    | 210       | 0        | 0         | -180     |
| Procurement                   | 167             | -72                      | 95    | 210       | 0        | 0         | -180     |

Result of calculation of IE Scorecard Business VS Technical

TABLE 6. IE Scorecard Business VS Technical

|                     | Academic Information System | E-learning Information System | Procurement |
|---------------------|-----------------------------|-------------------------------|-------------|
| Business Value      | 79                          | 104                           | 104         |
| Technical Value     | -18                         | -9                            | -9          |
| Value               | 61                          | 95                            | 95          |
| Max Business Value  | 165                         | 165                           | 165         |
| Max Technical Value | 45                          | 45                            | 45          |
| Min Business Value  | -45                         | -45                           | -45         |
| Min Technical Value | -135                        | -135                          | -135        |

V. CONCLUSION

It can be explained that who has the largest total value of E-learning information system and procurement information system with a total value of 95 while the lowest total value is academic Information System of 61 then the information system that provides optimal benefits is academic SI, E-Learning and Procurement by karen that this information system is feasible in implementing.

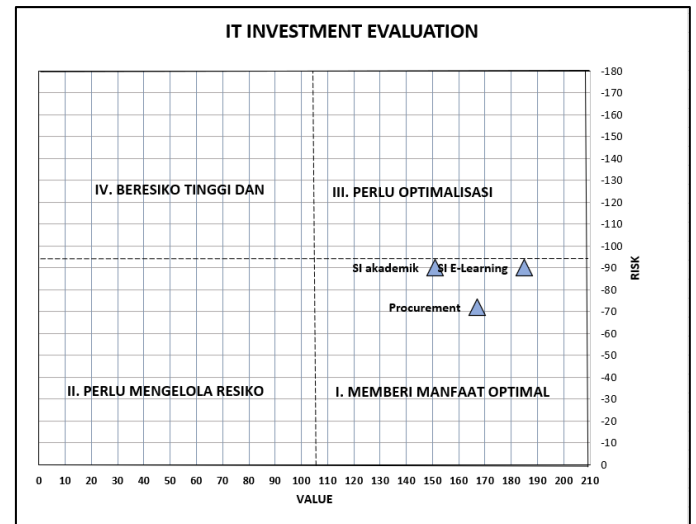


Fig. 2. Matrix IT Investment

REFERENCES

- [1] HM, Rahmawati. (2015) 'Analisis SWOT dalam Menentukan Strategi Pemasaran Udang Beku', *Jurnal Galung Tropika*, 4(1), pp. 60–67.
- [2] Mahadiansar, M. and Aspariyana, A. (2020) 'PEST Analysis Model dalam Pengembangan Potensi Wisata Pulau Benan, Kabupaten Lingga, Kepulauan Riau', *Indonesian Journal of Tourism and Leisure*, 1(1), pp. 14–25. doi: 10.36256/ijtl.v1i1.93.
- [3] Pandian, B. R. (2018) 'Learning management system in Higher education Author: Bavani Raja Pandian'.
- [4] Parama Putra, S., Rahmat, K. and Guslinar Perdana, E. (2014) 'Informasi, Perencanaan Strategis Sistem Pada, Menggunakan Metode Ward and Peppard', *European Journal of Endocrinology*, 171(6), pp. 727–735. doi: 10.1530/EJE-14-0355.
- [5] Permatasari, A. (2017) 'Analisa Konsep Perencanaan Strategis', *Jurnal Ilmiah Magister Ilmu Administrasi*, 9(2), pp. 13–16. Available at: <http://jurnal.unnur.ac.id/index.php/jimia/article/view/27>.
- [6] Rusniati and Haq, A. (2014) 'Perencanaan Strategis Dalam Perspektif Organisasi', *Intekna*, 2(2), pp. 102–209. Available at: [http://download.portalgaruda.org/article.php?article=352623&val=8097&title=perencanaan strategis dalam perspektif organisasi](http://download.portalgaruda.org/article.php?article=352623&val=8097&title=perencanaan%20strategis%20dalam%20perspektif%20organisasi).
- [7] Sandjaja, I. E. and Pumamasari, D. (2017) 'Perancangan Kuisisioner Survei Galangan', *Technology Science and Engineering*, 1(1), pp. 27–33.
- [8] Sasmito, G. W. (2017) 'Penerapan Metode Waterfall Pada Desain Sistem Informasi Geografis Industri Kabupaten Tegal', *Jurnal Informatika: Jurnal Pengembangan IT (JPIT)*, 2(1), pp. 6–12.
- [9] Wardhanie, A. P. and Kumalawati, D. (2018) 'Analisis business model canvas pada perpustakaan Institut Bisnis dan Informatika Stikom Surabaya dalam meningkatkan kualitas perguruan tinggi', *Berkala Ilmu Perpustakaan dan Informasi*, 14(2), p. 124. doi: 10.22146/bip.32247.
- [10] Widjanadi, I., Yulia and Santoso, L. W. (2015) 'Analisa Investasi Sistem Informasi Administrasi Pada Distributor X dengan Menggunakan Metode Information Economics', 3(1), pp. 1–8.
- [11] Yani, J. A. and Pos, T. (2015) 'DI SURAKARTA Liana Mangifera Universitas Muhammadiyah Surakarta Abstract', 19, pp. 24–33.
- [12] Zulkifli (2016) 'Implementasi Metode Information Economics (IE) Untuk Menganalisis Manfaat Investasi Sistem Dan Teknologi Informasi USNI', *Jurnal Satya Informatika*, 1(2), pp. 65–81.
- [13] Alma, Buchari., 2010. Metode Dan Teknik Menyusun Tesis. Edisi ke 7 penyunt. Bandung: Alfabeta.
- [14] Arikunto, Suharsimi., 2006. Prosedur Penelitian Suatu Pendekatan Praktik. Revisi VI penyunt. Jakarta: PT Rineka Cipta.
- [15] Munir, M., 2008. Kurikulum Berbasis Teknologi Informasi dan Komunikasi. Bandung: Alfabeta.
- [16] Syarif Hidayat, M., 2012. Profesi Kependidikan Teori dan Praktik di Era Otonomi. Tangerang: Pustaka Mandiri.
- [17] Syarif Hidayat, M., 2013. Teori Dan Prinsip Pendidikan. Jakarta: Pustaka Mandiri.