

## STUDY OF SWOT ANALYSIS ON ACADEMIC INFORMATION SYSTEM AT UNIVERSITAS PATTIMURA AMBON

<sup>1</sup>ATIANA SOFIA KACI, <sup>2</sup>DWI ARMAN PRASETYA, <sup>3</sup>NINIK SISHARINI

<sup>1</sup> Student of Magister Management of Information System, Universitas Merdeka Malang

<sup>2</sup> Lecturer of Electrical Engineering Department, Universitas Merdeka Malang

<sup>3</sup> Lecturer of Economics and Business Departmen, Universitas Merdeka Malang

e-mail:<sup>1</sup> tia.sofia16@gmail.com, <sup>2</sup> arman.prasetya@unmer.ac.id, <sup>3</sup> nanik.sisharini@unmer.ac.id

### ABSTRACT

*At this time, every organization try to implement the system or information technologies in order to improve the efficiency and effectiveness of in the process of business, also to be able to give the added value in the form of competitive advantage in the business competition. The application of information technologies system will be helpful if the implementation is in accordance with the goal, vision and mission of the organization to establish a business strategy and a strategy of the information technology system. So that it takes analysis of the many factors that influence the formation of a planning a strategy of the system or information technologies are able to adapt and in harmony with a strategy of business.*

*One of the techniques in analyzing strategy is to use analysis SWOT where the analysis focusing to Strength, Weakness, Opportunity, and Threat*

**Keywords:** *academic information system, Universitas Pattimura Ambon, Strategy, SWOT analysis*

### 1. INTRODUCTION

Information technology improves in line with world's human resource. Technology plays role as a tool to ease and smoothen a certain task to achieved expected result for human. Computerized system as the fastest and the most accurate solution is expected to solve every problem that requires speed and accuracy easily.

Academic Information System is specially designed to meet the need of university which requires computerized educational service to improve their performance, service quality, competitiveness and quality of human resources. (Sutabri, 2012) states that the academic information system is a series of interconnected sub-systems which work together harmoniously to achieve the goal in processing data into information needed by the user in relation with academic activity. The use of information technology has become absolute due to the importance of integrated information in supporting a more efficient and competitive company's system. This system is specially designed to meet the need of university for computerized educational system to improve their performance, service quality, competitiveness and the quality of human resources.

The Academic Information System greatly assists the processing of students' score, university's courses, lecturers' and staff data and the faculty/department administration in term of time and operation cost efficiency (Rahmawati, 2012). The Academic Information System is also already adjusted to the university need including the EPSBED (Study Program Evaluation Based on Self-Evaluation) report compilation which is submitted to DIKTI in each semester automatically. A well-organized Academic Information System (SISMIK) is beneficial for all academic staff at Universitas Pattimura of Ambon. The service and sub-services provided by the Academic Information System will enable the students to complete their study easier.

This study will discuss about the strategy and implementation of academic information system at Universitas Pattimura Ambon.

### 2. LITERATURE REVIEW

#### 2.1 Academic Information System

System can be defined as a unit of two or more interacting component or sub-system to achieve certain goal. A system may consist of several sub-systems. For example, a computer consists of hardware and software sub-systems. Each sub-system may consist of several smaller sub-systems or several components. The hardware sub-system may consist of input, processor, output and external memory tools. The sub-systems interact and connect with each other to form a unity in order to achieve certain goal or purpose. The sub-systems interaction is made in a

way to achieve an integrated goal. Each component of a computer works independently and unintegrated, it is impossible to achieve the aforementioned goal.

Information can be defined as a result of data processing in a more useful and meaningful for its user in which it describes a series of real events or facts to be taken as decision-making consideration. Source of information is data. Data is the plural form of datum or data-item. Data is a fact describing a series of events and an entity of facts. Event is an occurrence in a certain or definite moment. In business field, events are the change of value which is recognized as transaction. For example, sales is value change transaction of item value into value of money or account receivable. An entity of fact is in the form of real object such as place, thing and individual which really exists and occurs. Quality of an information lies in three items namely accuracy, relevant and in timely manner. Information system contains various importance information about people, place and everything within or in surrounding an organization. Itself means a processed data in a more meaningful and useful form as a consideration to make a decision. Data itself is a series of facts that represent certain event, condition or occurrence within or in surrounding physical environment of an organization. Data cannot be taken directly as a consideration of decision-making yet it must undergo certain process so that it can be comprehensible to users so that they can use it in making a decision.

Information system contains three basic activities namely input, processing and output. These three basic activities produce required information for the organization to make a decision, control its operation, problem analysis and to create new product or service. The input plays role in raw data collection, both from within and surrounding environment of the organization. Processing has its part to convert the raw data into more meaningful form. While the output takes the part of transferring the processed information to parties or activities in need of the information. Information system also needs feedback as an evaluation base and improvement in the next input phase.

(Liatmaja,2013), academic is a field that focuses on curriculum or learning in its function to improve knowledge of manageable education by a certain school or educational institution. Academic information system is a software to service information and manage the administration which is related to academic activity.

## **2.2 SWOT Analysis**

SWOT analysis includes all effort to control the strength, weakness, opportunity and threat of the company's performance.

External information on chance and threat can be achieved through various sources such as client, government documents, supplier, banker and company's colleagues. There are plenty companies that use the service of scanner service institution to find newspaper clipping, research on the internet and relevant domestic and global trends analysis.

Next (Rangkuti, 2004) explains that the SWOT analysis is systematic identification of various factors in formulating the company's strategy. This analysis is based on logic which enables to maximize strength and opportunity, and at the same time is able to reduce the weakness and threat. The process of strategy taking is always related to mission, goal, strategy and company's policy development. Therefore, strategy planning must analyze the company's current strategic factors (strength, weakness, opportunity and threat). SWOT analysis compares external factors of opportunity and threat with the internal ones; strength and weakness. Elements of SWOT are Strength, Weakness, Opportunity and Threats.

When it is applied accurately, this simple assumption will have great impact toward a successful strategy planning. SWOT analysis has elements which is under the management control, and also the ones that are beyond the organization's control. Strength and Weakness are factors or managerial elements which are under the organization's control, while the Threat and Opportunity are the ones beyond the organization's control.

a. Strength is a factor that has always be under control so that it gives positive impact for the company. Strength refers to the relative resource, skills and excellence toward competitor and market demand, and also a special competence that provides comparative excellence. The Strength can exist in the resource of financial, image, market leadership, buyer and supplier, and others.

b. Weakness is a factor that is totally under the management control yet unsuccessfully controlled which resulted in negative impact for the company. Weakness is the limitation or serious lacking of an organization which greatly hamper the company's effective performance.

c. Opportunity is a factor beyond the management control but its existence serve an opportunity to gain success for the company if it has enough strength to apply and adapt it. The opportunity is an importance situation that brings benefit for the company's environment. The tendency of importance is one of the opportunity's forms. Abandoned identification, regulation change or competition and also relation improvement with the supplied can provide good opportunity to the company.

d. Threat is a factor beyond the company's control yet on its appearance it has a threatening potential toward the organization existence. Threat is a significant situation that bring adversity toward the company and

organization which becomes the main disturbance on the current position or the goal to achieve from the company. The existing of new competitor, the slow market growth, the increase in bargaining power of technology change can be a threat toward the company's success.

### **3. RESEARCH METHOD**

Based on type of problem and goal to achieve, this research is categorized as qualitative descriptive. According to Bogdan Taylor (Moleong, 2003), qualitative method is a research method in which its result is a descriptive data in form of written or oral of people or observable behavior that can be directed to the background and the individual holistically (cannot isolating the individual or organization to a variable or hypothesis), but needs to be taken as a part of the need.

The characteristics of qualitative research according to Strouss and Corbin is based on the natural condition and carries out the purpose of discovering concept. In qualitative research, researcher is the key instrument.

The focus of this research is limited to the analysis of SWOT of Academic Information System (SISMIK) of UNPATTI. SWOT analysis in this research is conducted to all internal and external variable as a whole.

The internal variable to analyze and as key indicator of Sismik is Strength and Weakness, while the external ones is the Opportunity and Threat. The SWOT analysis indicator in this research are:

- a. Internal (S & W)
  - Resource
  - Finance
  - Internal organizational management strength or weakness
  - Organizational experiences (the succeeded and the failed)
- b. External (T & O)
  - Government Regulation
  - Technology development
  - Occurring events
  - Environment

Data type in this research is primary and secondary. Primary data is obtained through interview and observation. While the secondary data is obtained through university operator and lecturers in the form of documentation.

This research population is the operator and the stakeholder at Universitas Pattimura Ambon.

Sample in this research is using purposive sampling technique (Sugiyono, 2013). The informants were obtained by screening qualified individual to get key informants who gave significant detail about SISMIK at Universitas Pattimura Ambon.

The analysis toward Academic Information System used the SWOT analysis (Strength, Weakness, Opportunity, Threat). This analysis is based on the assumption that an effective strategy will maximize the strength and opportunity and minimize the weakness and threat.

#### **3.1 External Factor**

The external factors affect the formation of Opportunity and Threats (O and T). These factors related with conditions outside the company which affect the company's decision taking. These factor include industrial environment as well as macro, economics, political, legal, technology, demography and social culture.

#### **3.2 Internal Factor**

The internal factors affect the formation of Strength and Weakness (S & W). These factors related to company's condition which affects the decision taking in the company.

### **4. RESULT AND DISCUSSION**

#### **4.1 An analysis of strategic values of Academic Information System**

The Universitas Pattimura Ambon is the only state university in Maluku. As the preeminent university, the Unpatti bears a great responsibility to shape and form the best local youth who has competitiveness in this modern era especially when they face a competition. The Academic Information System (SISMIK) as the fundamental pillar of the university must also be evaluated continuously and at the same time also is able to make innovation.

Throughout its journey, the Academic Information System (SISMIK) of Unpatti Ambon has undergone several significant changed. This is due to the emergence of changes that literally must be adjusted with the academic environment of Unpatti Ambon. As an instance, the increasing number of students each year, the additional of several system subs in the SISMIK itself, and others.

Supporting and Obstacle Factor :

- a) Supporting Factor
  - Universitas Pattimura Ambon is the only state university in Maluku province.
  - Supporting IT facilities
  - the integrated Academic Information System
- b) Obstacle Problem
  - Limited resources
  - Inadequate financial situation
  - Improvement length of time

#### 4.2 SWOT analysis

The strategy arrangement using SWOT analysis will analyze data of internal and external environment. Internal data is environment within the organization which affects and determine the strategy planning to formulate. While the external environment data is factors beyond company's control. The external factors affect the organization condition both directly and indirectly. Therefore, the external condition is worth to be considered in determining organizational strategy.

Based on the research, the external and internal factors can be identified as seen in tabel 1 and 2:

Table 1. Internal Factor Evaluation Matrix

Strategic Factors		Weight	Rating	Weight x Rating
<b>Strength</b>				
1	Support from management/stakeholder to improve study limit warning integrated SISMIK at UNPATTI	0,11	3	0,33
2	The management of SISMIK governance guidance to assist required data processing process	0,14	4	0,57
3	Provision of adequate information technology facility	0,11	3	0,32
4	Integrated information system	0,07	2	0,14
<b>Weakness</b>				
1	Limited IT staff	0,14	4	0,57
2	Limited of SISMIK management	0,14	4	0,57
3	SISMIK application that has not been thoroughly in all units	0,14	4	0,57
4	The limited funding in developing SISMIK	0,11	3	0,32
<b>Total</b>		<b>1,00</b>		<b>3,52</b>

Table 1 presents the evaluation of internal factors which shows that the SWOT analysis of internal factor on SISMIK is 3.52. The score of internal factors will be applied in internal-external matrix.

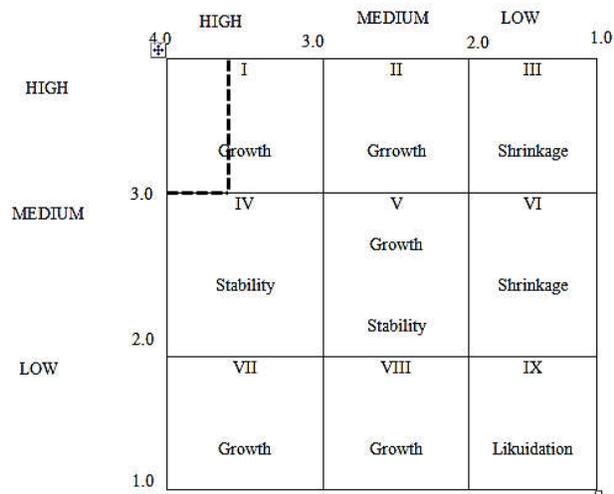
Table 2. External Factor Evaluation Matrix

Strategic Factors		Weight	Rating	Weightx Rating
<b>Opportunity</b>				
1	The increase of the number of students who exceed the study period which initiates the study period limitation to be stated in SISMIK	0,15	3	0,47

2	There is government regulation on student's study period limitation	0,15	3	0,47
3	The demand of academicians toward SISMIK development Unpatti	0,15	3	0,47
4	SISMIK enable the administrator to perform more efficient	0,15	3	0,45
<b>Threat</b>				
1	The demand of academicians of Unpatti toward service quality	0,2	4	0,84
2	There are more universities to provide service through a more advance academic information system	0,1	2	0,21
3	The decrease of society's trust level toward Unpatti	0,1	2	0,21
<b>Total</b>		<b>1,0</b>		<b>3,00</b>

From table 2 on external factor evaluation can be seen that the SWOT analysis score on SISMIK is 3.00. The external factor score will be applied in internal-external matrix.

After analyzing the internal and external factors, the next step is to make the internal-external matrix (IE Matrix). This analysis is to learn the appropriate strategy to implement in developing study period warning in SISMIK.



Picture 1. Matrik Internal-Eksternal (IE)

Based on the above Internal-External Matrix, it can be understood that the appropriate strategy in accordance to "Development" position is through horizontal integration which can be done by expansion to a wider area. It means there is a need from the management/stakeholder to improve SISMIK at Unpatti. Besides, the growth strategy through horizontal integration can also be done by adding the number of qualified IT staff, adding more fund, etc.

SWOT matrix is an identification of various factors systematically to formulate the organizational strategy. This analysis is based on the logic to maximize the Strength and Opportunity, but at the same time to minimize the Weakness and Threats.

If the possible strategy to take by organization is seen as an integration of opportunity and threats with the strength and weakness, then the organizational strategy can be categorized into SWOT matrix of Academic Information System in the following table :

Table 3. Academic Information System of SWOT Matrix

<b>Internal</b>  <b>External</b>	<b>Strengths (S)</b> 1. Support from stakeholder 2. SISMIK governance guidance 3. Adequate facility 4. Integrated Information System	<b>Weakness (W)</b> 1. Limited IT staff 2. SISMIK governance authority limitation 3. The application of SISMIK that is not yet in total practice 4. Funding limitation
<b>Opportunities (O)</b> 1. The increase number of students that exceed study period as the cause of study period warning stated in SISMIK 2. Government regulation on study period limitation 3. The demand of academicians toward the improvement of SISMIK 4. SISMIK is able to improve a better administrator performance	<b>Strategy SO</b> 1. To minimize the operational cost of information technology improvement by developing the productivity. 2. To improve the human resource quality 3. To improve the using of existing facility 4. To improve SISMIK quality to meet the demand of academicians of Unpatti Ambon	<b>Strategy WO</b> 1. To minimize operational cost of information technology improvement by developing the productivity. 2. To improve the human resource quality 3. To improve the using of existing facility 4. To improve SISMIK quality to meet the demand of academicians of Unpatti Ambon 5. To allocate the funding for SISMIK development
<b>Threats (T)</b> 1. The academicians' demand toward service quality 2. There are more universities to provide service through a more advance academic information system 3. The decrease of society's trust level toward Unpatti	<b>Strategi ST</b> 1. To minimize the operational cost of information technology improvement by developing the productivity 2. To improve SISMIK quality to meet the demand of academicians of Unpatti Ambon. 3. To improve the using of existing facility 4. To improve the human resource quality	<b>Strategi WT</b> 1. To improve SISMIK quality to meet the demand of academicians of Unpatti Ambon. 2. To improve the human resource quality 3. To improve the using of existing facility 4. To allocate the funding for SISMIK development

**5. CONCLUSION**

Based on the analysis and discussion, it can be drawn conclusion toward the academic information system:

**5.1 Internal Factors that Support the Academic Information System Development**

The support from management/stakeholder to develop the SISMIK at Unpatti, the formation of SISMIK governance guidance to assist the required data processing process, the provision of adequate information technology facility, the provision of integrated information system, the provision of IT human resources and to prepare the budget to improve the SISMIK.

**5.2 External Factors that Support the Academic Information System Development**

There is trust improvement from the society toward educational quality at Unpatti. It is proven by the increase of number of students annually, SISMIK development to support the Unpatti mission as an international-level campus, the demand of academicians toward SISMIK improvement at Unpatti, the fact that SISMIK enable the administrator to perform better work, and to regain the society's trust toward Unpatti.

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