Optimizing University Plans through Information System Strategic Planning

Addin Gama Bertaqwa[*], Sunardi, Uswatun Hasanah

Universitas Nahdlatul Ulama NTB
Jl. Pendidikan No 06, Mataram, NTB, Indonesia
Email: addingama@gmail.com, soenardhi.75@gmail.com, uswatunhasanah.ntb@gmail.com

[*]***Corresponding Author***

This study is motivated by the policy of a university related to Information System (IS) or Information Technology (IT) which was prepared without careful planning so that the information system that had been built did not fully support the university's plan according to the university strategic plan. Therefore, the purpose of this research is to be able to implement an information system that is optimal and in line with the university strategic policies, so strategic planning of IS is needed. This is done so that the investment spent on IS development is accordance with the needs and can provide measurable benefits in accordance with the goals and objectives of the university. This study uses PEST, SWOT, Value Chain, and Critical Success Factor analysis. Then determine the IS/IT strategic plan and it is expected to produce outputs in the form of IS/IT strategic planning proposals at the Campus X. Therefore, based on the results of the McFarlan Strategic Grid mapping which states that of the 6 existing IS applications, none of the applications are in the Strategic quadrant and the High Potential quadrant. The result of the IS/IT strategic planning shows that there are 12 new IS applications, and the development of new network infrastructure as well as the addition of new human resources.

***Key words*: Strategic planning; Information System**

I. INTRODUCTION

The latest development of Information Technology (IT) or Information Systems (IS) can support the business activities of an organization. To be able to properly implement IT/SI, careful considerations are needed in the process of acquiring IT/IS. This is done so that after implementation, the system that has been designed remains relevant to the goals and objectives of the organization.

Universities, as one of the educational institutions that play an active role in the intellectual life of the nation, are expected to be able to implement the development of IT/IS, especially in supporting the Tridharma process of higher education, as well as building superior and competitive human resources in the provision of international education standard.

To be able to implement an information system that is optimal and in line with the strategic policies of higher education institutions, strategic planning for IS is needed. This is done so that the investment spent on IS development by universities is in accordance with the

needs and can provide measurable benefits in accordance with the goals and objectives of the university.

This study takes a case at a private university (Campus X) because it is one of the new and leading universities in the LLDIKTI VIII area and is also expected to be able to implement optimal, planned, and measurable IS development in accelerating the achievement of university goals and objectives. Currently, Campus X has implemented an information system to support its business processes.

There are several IS that are used by the academic community to support administrative activities on Campus X. However, the implementation of Information System is sometimes carried out spontaneously and not well planned so that the usefulness of the system becomes useless and causes the investment made not achieving the expected benefits.

For this reason, to optimally implement IS in universities, IS strategic planning is needed that is in line with the University's strategy. This is necessary to assist Campus X in accelerating their goals and objectives achievement.

II. METHOD

This study will be carried out in 4 stages that will be explained below.

A. Literature Review

The literature review consists of 2 processes:

A.1. Study Literature

In this process, a study of the strategic plan (RENSTRA) of Campus X 2020-2045 was carried out to identify and understand the direction of goals of Campus X in the 2015-2020 period. A literature study was also conducted to obtain a logical and systematic framework of thinking in understanding strategic planning concepts obtained from previous research.

A.2. Interview and Observation

After conducting a literature study, the next process is to conduct interviews and observations of stakeholders to obtain appropriate data regarding the current condition of Campus X and plans for future developments.

B. Business environment and SI/TI analysis

After getting the complete data from the literature review stage, the next step is to do business environment and current SI/TI environment.

B.1. Establish the IS/IT strategic plan

After analyzing the business environment and IS/IT both internally and externally, at this stage an IS/IT solution is identified based on the results of the analysis. In the analysis of the internal business environment, IS solutions are obtained from the results of CSF analysis and Value Chain analysis.

In the analysis of the external environment, the IS solution is obtained from the results of the PEST analysis and Porter's Five Force Model. Meanwhile, IS and IT solutions from the results of the external IS/IT environment are obtained based on current IS/IT trends in higher education.

B.2. Prepare IS/IT strategic planning proposals

At this stage, the IS strategic planning proposal for Campus X is prepared. The proposed IS portfolio for the future is carried out using the McFarlan Strategic Grid for the IS solutions that have been identified. Interviews were conducted with work units related to IS solutions.

The result is the SI position in the McFarlan quadrant. Furthermore, proposals for the development of network infrastructure, hardware, and software are prepared to support the implementation of IS solutions. A plan for human resource requirements and an IS/IT management strategy is also proposed.

III. RESULT

A. Business Environment Analysis

A.1. External business environment analysis

This analysis aims to determine the external business conditions of Campus X. At this stage, PEST analysis (Political, Economic, Social, Technological) and Porter's Five Force Model. Based on the PEST analysis, the factors that affect the external business environment are:

1. Politic, related to the quality assurance of the higher education quality assurance system in 2020 which applies the independent campus curriculum. Lecturer Quality Improvement, which regulates lecturer education qualifications and Research Improvement.
2. Economy, the economic condition of the NTB region has increased so that the willingness of parents to send their children to school is very high. Besides that, the government's has high support regarding the provision of NTB scholarships for domestic and foreign lectures.
3. Social, in a situation like this, improving the quality of education in the regions can be achieved by improving the quality of educators (lecturer). Therefore, every campus is required to produce a generation of lecturer who are more qualified and able to compete.
4. Technology, the development of information systems in the world of education is a system that can assist in the

management of universities to face the era of the industrial revolution 4.0. For example, an online learning model (e-learning) based on social media, so that the online teaching and learning process becomes more comfortable and effective in achieving learning objectives.

While the results of the analysis of Porter's five competitive factors model aims to analyze the condition of the external business environment of campus X related to business competition, for example:

1. Industrial Competition (Rivalry), the main competitor of Campus X is not from public universities but comes from private universities which have almost the same number of students. This is due to a very effective promotion process carried out by competing universities.
2. Threat of Substitute, such as the emergence of vocational institutions, which provide 1 year of education by promising a job placement at the company after they graduate, is the threat of substitute products experienced by campus X.
3. Supplier Power, Campus X's main suppliers are lecturers and education staff. Other suppliers are the public, government regulations relating to higher education, agencies, and foundations.
4. Threat of New Entrants and Entry Barriers, such as the emergence of new campuses with the same study program, especially state universities (PTN), is a threat of new entrants to Campus X.

A.2 Internal business environment analysis

At this stage the analysis of the internal business environment is carried out with two analytical tools, namely Critical Success Factor (CSF) analysis, and Value Chain analysis.

A.2.1 Critical Success Factor (CSF) analysis

To do CSF analysis, we need to know the vision, mission, goals, and strategic programs of Campus X listed in the 2020-2045 RENSTRA.

A.2.1.1 Vision

To become a leading and superior university in the integration of science, religion, and civilization based on the *Ahlussunnah wal Jama'ah An-Nahdliyah* and *Pancasila* ideology.

A.2.1.2 Mission

- Organizing quality higher education to produce human resources who have moral-spiritual, emotional, intellectual excellence, life skills, independence, and concern for the people and the environment.
- Conducting research capable of producing innovative science, technology, culture, and civilization and supporting the progress of national and regional development.

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- Organizing community service to apply science, technology, culture, and civilization because of education and research.
- Organizing cooperation with various parties/institutions at home and abroad to support the implementation of the Tridharma of Higher Education.

A.2.1.3 Goals

- Become a quality higher education institution to produce human resources who have moral-spiritual, emotional, intellectual excellence, life skills, independence, and concern for the people and the environment (G1)
- The realization of the implementation research that can produce innovative science, technology, culture, and civilization and supporting the progress of national and regional development (G2)
- The realization of the implementation of community service to apply science, technology, culture, and civilization as a result of education and research (G3)
- Cooperating with various universities and other institutions at home and abroad to realize the progress of science, technology, arts, and culture (G4)

A.2.1.4 Target

- The need for resources will be very large in the form of a very large number of lectures, the need for infrastructure that must continue to be built. On the other hand, innovation in human resource development and sustainability research. (T1)
- Demand depth of knowledge. So, the important resource is on the quality side, not the quantity. Therefore, education costs will not be met only from tuition fees, but must be met by research costs that come from industry or the government or other third parties (T2)
- Research and technology innovation is a continuation of innovation in human resource development and research. However, the strategy at this stage is more expanded and leads to research and technology (T3)
- The scale of research development aims to produce technology that can provide use value for Campus X to compete in the creation of technology based on competitive research results. Every technological creation produced by Campus X is registered as Intellectual Property Rights owned by Campus X and can be developed for the benefit of Campus X in general, and society in particular (T4)
- The scientific scale levels will compete at the international level as well as technology. (T5)
- Public interest in studying at Campus X has reached an international level through student exchanges with foreign universities (T6)

A.2.1.5 Strategic program

The strategic objectives of each strategic goal of Campus X are mapped as in Table I.

TABLE I. Campus X policy direction

No	Goal	Target	Policy Direction
1	Become a quality higher education institution to produce human resources who have moral-spiritual, emotional, intellectual excellence, life skills, independence, and concern for the people and the environment (G1)	T1, T3	Improved academic or HR quality assurance
2.	The realization of the implementation research that can produce innovative science, technology, culture, and civilization and supporting the progress of national and regional development (G2)	S3, S4	Improving the professionalism of lecturers and performance-based education personnel
3	The realization of the implementation of community service to apply science, technology, culture, and civilization as a result of education and research (G3)	S3	
4.	Cooperating with various universities and other institutions at home and abroad to realize the progress of science, technology, arts, and culture (G4)	S5, S6	Increasing institutional capacity through collaboration with domestic and foreign universities

Based on the defined policy directions, the strategic program of Campus X will be mapped to achieve the strategic objective of Campus X. The strategic programs of Campus X for each purpose will be explained below:

The policy direction to achieve goal 1 (G1) is to increase the role of academic quality assurance with the strategic programs that can be seen in Table II.

TABLE II. Goal 1 strategic programs

Code	Strategic Program
P1.1.	Improve the new student admission system.
P1.2.	Increase curriculum relevance to market needs (career opportunities).
P1.3.	Improving the performance of the learning process based on modern learning methods and technology.
P1.4.	Improving the quality of management of information system-based learning facilities and infrastructure.
P1.5.	Implementing an integrated academic quality assurance system based on information systems.
P1.6.	Develop soft skills and an integrated entrepreneurial spirit in intra and extracurricular activities.
P1.7.	Competency-based integrated research-oriented laboratory standardization.

The policy direction to achieve goal 2 (G2) and goal 3 (G3) is to improve the professionalism of lecturers and performance-based education personnel with the strategic programs that can be seen on Table III.

The policy direction to achieve goal 4 (G4) is to increase cooperation and partnerships between institutions both at home and abroad with the strategic programs that can be seen it Table IV.

TABLE III. GOAL 2 AND GOAL 3 STRATEGIC PROGRAMS

Code	Strategic Program
P2.1.	Accelerate lecturers and education staff to improve educational qualifications and expertise through external funding sources and internal facilities based on a merit system
P2.2	Accelerate lecturers to improve academic positions through monitoring and evaluation of lecturer performance based on information systems.
P2.3	Improving research activities and community service through internal and external funds.
P2.4	Increase research collaboration with other institutions at home and abroad that take advantage of institutional resources.
P2.5	Develop a performance appraisal system for lecturers and education staff to improve professionalism

TABLE IV. GOAL 4 STRATEGIC PROGRAMS

Code	Strategic Program
P3.1.	Increase cooperation and partnerships with domestic and foreign universities based on the Tridharma of Higher education with the MOU
P3.2	Increasing the role of institutions in organizations, associations, consortia, as well as national and international forums.
P3.3	Increasing the role of institutions in regional and national development programs.
P3.4	Cooperation with graduates in terms of employment

Based on the policy directions, the Critical Success Factor (CSF) is identified for each policy direction that has been determined. Table V is the results of mapping the policy direction of Campus X with its CSF.

TABLE V. CAMPUS X POLICY DIRECTION AND CSF

Policy Direction	Critical Success Factor	Key Performance Indicator (KPI)
1. Improved academic or HR quality assurance	Curriculum relevance to market needs	Curriculum in accordance with national standards, and market (stakeholder) needs. Graduates can be accepted for work with an average waiting time of 3 months and a salary of 1.5 times the UMR.
	New student admission system	Registration is done online, and the entrance selection goes through 2 stages: written exams and interviews
	Integrated quality assurance system	SPMI quality based on information system.
	Performance of the learning process based on modern learning technology	Laboratories standard based on competency and the use of online learning
	Development of soft skills and entrepreneurial spirit for students	Graduate competence in English language, nationally and internationally certified, and increasing number of student proposals in the Student Creative Program (PKM)
	Institutional and program study accreditation	Completed Institutional accreditation form and got B grade on AIPT and A grade for study program accreditation.

2. Improving the professionalism of lecturers and performance-based education personnel	Acceleration of educational qualifications of lecturers and education staff	Facilitating lecturers and education staff to obtain scholarships, both provided from outside the institution and from internal funding sources, and tightening the selection of lecturer admissions, at least S2 which is linear or in accordance with what is taught.
	Acceleration of academic functional positions of lecturers	Monitoring and evaluation of lecturer performance through information system for level of lecturer workload
	Lecturers are active in research activity every semester	Research reports published in research journals, both ISSN journals, nationally and internationally accredited. Increasing the number of lecturers who receive research grants.
	Lecturer is active in community service activity	Community service reports by lecturers, there are lecturers who get community service grants.
3. Increase cooperation and partnerships between institutions both at home and abroad	The realization of cooperation with many stakeholders, both government, educational institutions, and industry.	The number of MOU produced is according to target.

There are 5 sections that will implement the policy directions of Campus X. The following is the description of the objectives and CSF of each section:

1. Student Admissions work unit

Table VI to VII provide an explanation of the direction of Campus X policies in the Student Admission work unit:

TABLE VI. STUDENT ADMISSION POLICY DIRECTION

Policy Direction	Work unit goal	Explanation
Improving academic quality assurance	Creating a promotion and socialization program and providing information needed by customers and being responsible for new student admission.	Provide all the accurate information needed by customer. Plan, implement, monitor, and carry out marketing activities and evaluate all activities related to student admissions.

TABLE VII. CSF FOR NEW STUDENT ADMISSION WORK UNIT

Work unit goal	Critical Success Factor	Key Performance Indicator (KPI)
Creating a promotion and socialization program and providing information needed by customers and being	Creating socialization and promotion program for Campus X	Implementation of the program according to plan (budget, scope, and time), and the increased number of registered prospective students.
	Provide all the information needed by prospective students	The provided information is accurate and on target

responsible for new student admission.	Monitoring and evaluating the implementation of promotion and socialization activities	Ensure all obstacles are resolved

2. Partnership work unit

Table VIII to IX provide an explanation of the direction of Campus X policies in the Partnership work unit:

TABLE VIII. COOPERATION WORK UNIT POLICY DIRECTION

Policy Direction	Work unit goal	Explanation
Increase cooperation and partnerships between local institutions and abroad	Plan, implement, and control the cooperation plan with other educational, governments, and industry institutions.	Drafting partnership plan with various institutions and conducted collaboration activities.

TABLE IX. CSF FOR COOPERATION WORK UNIT

Work unit goal	Critical Success Factor	Key Performance Indicator (KPI)
Plan, implement, and control the cooperation plan with other educational, governments, and industry institutions.	Drafting partnership plan with various related agencies.	Implementation of the program according to plan (budget, scope, and time), and the increased number of registered prospective students.
	Arrange various post-partnership activities that benefit both sides.	The provided information is accurate and on target

3. Academic work unit

Table X to XI are an explanation of the direction of Campus X policies in the Academic work unit:

TABLE X. ACADEMIC WORK UNIT POLICY DIRECTION

Policy Direction	Work unit goal	Explanation
Improving academic quality assurance	Providing quality academic services to all students.	Organizing and guaranteeing the quality of academic services by compiling governance, management, and auditing of all academic services.
	Ensuring learning activities based on modern learning technology.	Ensuring teaching and learning activities executed according to the semester learning plan and utilizing online learning technology.

TABLE XI. CSF FOR ACADEMIC WORK UNIT

Work unit goal	Critical Success Factor	Key Performance Indicator (KPI)
Providing quality academic services to all students	Develop planning and implementation of academic operational activities.	Academic activities executed according to the established academic calendar.
	Develop an evaluation plan for all academic services.	Conducting internal audits related to academic services every year.
Ensuring learning	Availability of facilities and	Facilities (classroom and lab) and learning

activities based on modern learning technology.	infrastructure to support teaching and learning activities based on modern learning technology.	media are available and have been improved through a series of trials and according to modern learning standards.
	The implementation of the entire lecture process including exams and practical activities.	The ratio of lecturers and students is in accordance with government standards, lecturers teach according to their qualifications, structured and planned lectures are in accordance with quality guidelines.

4. Quality Assurance work unit

Table XII to XIII provide an explanation of the direction of Campus X policies in the Quality Assurance work unit:

TABLE XII. QUALITY ASSURANCE WORK UNIT POLICY DIRECTION

Policy Direction	Work unit goal	Explanation
Improved academic quality assurance.

Improving the professionalism of lecturer and education personnel based on performance | Plan, implement and control the internal quality assurance system (SPMI) at Campus X | Responsible for making internal quality policies, monitoring and auditing the implementation of SPMI, and preparing institutions and study program before accreditation. |

TABLE XIII. CSF FOR QUALITY ASSURANCE WORK UNIT

Work unit goal	Critical Success Factor	Key Performance Indicator (KPI)
Plan, implement and control the internal quality assurance system (SPMI) at Campus X	Create an internal quality assurance standard (SPMI) manual	Implementation of the program according to plan (budget, scope, and time), and the increased number of registered prospective students.
	Coordinate and socialize the implementation of SPMI to related parties	The provided information is accurate and on target
	Ensuring continuous quality improvement in Campus X	All activity services at Campus X are in accordance with SPMI.

5. Research and Community Service (RCS) work unit

Table XIV to XV an explanation of the direction of Campus X policies in the Research and Community Service work unit:

TABLE XIV. RESEARCH AND COMMUNITY SERVICE WORK UNIT POLICY DIRECTION

Policy Direction	Work unit goal	Explanation
Improving the professionalism of lecturers and education personnel based on performance	Planning research activities and community service in the Research Master Plan (RMP)	Responsible and ensure that research and community service activities are carried out based on the Research Master Plan (RMP)

TABLE XV. CSF FOR RESEARCH AND COMMUNITY SERVICE WORK UNIT

Work unit goal	Critical Success Factor	Key Performance Indicator (KPI)
Planning research activities and community service in the Research Master Plan (RMP)	Lecturers' participation in research activities.	Each lecturer conducts at least 2 research in a year
	Lecturers' participation in community service activities	Each lecturer carries out at least 1 community service that contributes to society.
	Publication of research activities	Research results are published in ISSN, Accredited, National, and International scientific journals.

A.2.2 Value Chain analysis

There are main activities in Campus X that described in Table XVI.

TABLE XVI. CAMPUS X MAIN ACTIVITIES

Ongoing Activity	Action	Related Unit
INBOUND LOGISTIC (Promotion and Student Admission)	Student admission process begins with the online and offline registration process, entrance exams, and interviews to announce the accepted students.	Student Admission and Finance units
	Prospective students that accepted must re-register.	Academic and Finance unit
OPERATIONS (Teaching and research)	Filling out the study plan and arranging class schedule.	Academic and study program
	Recap of the teaching load of lecturers and the classes	Academic and study program
	Offline lecturers, recap attendance, and recap of student assignments.	Academic and study program
	Implementation of mid-term and end of semester exam and the process of the final grade	Academic and study program
	Preparation of Research Master Plan	Research and Community Service, and Finance

	Submission of internal and external research proposal	Research and Community Service, and Finance
	Research reporting	Research and Community Service
	Research monitoring and evaluation	Research and Community Service
OUTBOND LOGISTIC (Graduation/Alumni)	Determine student graduation through graduation meetings and carry out graduations for students who have passed.	Finance, Library, and Academic
MARKETING & SALES (Promotion and Career Center)	Develop, implement and evaluate promotional activities	Student Admission
	The establishment of a career center that serves as a medium for information on job vacancies for students and alumni.	Undefined
SERVICES (Community Service)	Community Service Submission of internal and external proposals	Research and Community Service
	Announcement of approved proposals	Research and Community Service, and Finance
	Community Service report	Research and Community Service, and Finance
	Community Service monitor and evaluation	Research and Community Service

Campus X also have supporting activities that not included in the Tridharma of Higher Education that described in Table XVII:

TABLE XVII. CAMPUS X SUPPORTING ACTIVITIES

Ongoing Activity	Action	Related Unit
Institution Infrastructure		
Laboratories	Administration, scheduling, maintenance of facilities, and practicum infrastructure	Laboratory
Library	Providing literature facilities for lecturers and students	Library coordinator
Quality Assurance	Ensure that university's Tridharma activities are carried out according to the established standards.	Quality Assurance
Finance	Provide student financial management services and report financial condition to top management.	Finance
Partnership	Develop a plan for partnership with other educational institutions, government, and industry	Partnership

Human Resource Management		
Staff administration, recruitment, and HR development	Prepare HT recruitment and development plans	Vice Rector 1 and 2
	Develop lecturer level of workload and academic staff	Vice Rector 1 and 2
Development of Technology		
Network and system infrastructure, and application development	Develop, implement, and evaluate the blueprint for IT development in Campus X	Computer laboratory
Procurement		
Manage funding from student tuition fees, research and collaboration, as well as procurement of supporting facilities and infrastructure	Manage Campus X student admission and spending plans	Finance and Vice Rector 2

IV. DISCUSSION

There are some identification tools to optimize information system (IS) planning in Campus X.

A.1 Identification of IS solutions based on PEST analysis

Based on the PEST analysis, a suitable IS solution can be mapped to manage external factors that affect the external business environment of Campus X. The following are the results of the identification of IS solutions based on the PEST analysis.

TABLE XVIII. IDENTIFICATION OF IS SOLUTIONS BASED ON PEST ANALYSIS

PEST Factor	Requirements	IS Solution
Politic	BAN-PT Accreditation	Accreditation Information System
	Level of lecturer workload	Quality Assurance Information System
	Scholarship information	Scholarship Information System
	Higher Education Internal Quality Assurance System	Level of Lecturer Workload Information System
Economic	Scholarship Information	Scholarship Information System
Social	Community service activity plan	Research and Community Service Information System
Technology	Online learning	Mobile-based online learning

A.2 Identification of IS solutions based on Porter's Five Force Model analysis

Based on Porter's Five Force Model analysis result, it can be concluded that there are three most influential factors that can be described in Table XIX:

TABLE XIX. IDENTIFICATION OF IS SOLUTIONS BASED ON PORTER'S FIVE FORCE MODEL ANALYSIS

Factor	Requirements	IS Solution
Industry Competitors	Promotion and socialization	Website and Admission Information System
Threat of new entrants	Promotion and socialization	Website and Admission Information System
Buyer power	Student data and their satisfaction	Customer Relationship Management System

A.3 Identification of IS solutions based on CSF analysis

Based on CSF analysis on work units in Campus X to help them achieve their goals. Table XX to XXIV are the IS solution for each work unit:

TABLE XX. IDENTIFICATION OF IS SOLUTIONS BASED ON CSF IN ADMISSION WORK UNIT

Work unit goal	Requirements	IS Solution
Create a promotional and socialization program for Campus X and provide information needed by customers and be responsible for student admission	Data for High Schools in NTB and alumni	Customer Relationship Management System
	Student admission activity report	Admission Information System
	New student data and Student admission SOP	Admission Information System
	Campus X Profile	Website

TABLE XXI. IDENTIFICATION OF IS SOLUTIONS BASED ON CSF IN PARTNERSHIP WORK UNIT

Work unit goal	Requirements	IS Solution
Plan, implement, and control the partnership plan with other educational, governments, and industry institutions.	Collaboration data that has been done	Partnership Information System
	Data on the scope and realization of collaboration.	Partnership Information System

TABLE XXII. IDENTIFICATION OF IS SOLUTIONS BASED ON CSF IN ACADEMIC WORK UNIT

Work unit goal	Requirements	IS Solution
Providing quality academic services to all student	Academic calendar, class schedule, exam schedule, student and lecturer attendance, practicum, grades and final project	Academic Information System
	Academic activity data each year	Academic Information System

Ensuring learning activities based an modern learning technology	Equipment data	Infrastructure Information System
	Lecturer and student data for each study program. Attendance list of students and lecturers.	Academic Information System

TABLE XXIII. IDENTIFICATION OF IS SOLUTIONS BASED ON CSF IN QUALITY ASSURANCE WORK UNIT

Work unit goal	Requirements	IS Solution
Plan, implement and control the internal quality assurance system (SPMI) at Campus X	SOP information for each work unit.	Quality Assurance Information System
	Information on SPMI activities carried out each semester	Quality Assurance Information System

TABLE XXIV. IDENTIFICATION OF IS SOLUTIONS BASED ON CSF IN RESEARCH AND COMMUNITY SERVICE WORK UNIT

Work unit goal	Requirements	IS Solution
Planning research activities and community service in the Research Master Plan (RMP)	Research data and scientific publications	Research and Community Service Information System
	Community Service data and journal publications	Research and Community Service Information System

A.4 Identification of IS solutions based on Value Chain analysis

The following is a Campus X information system solution based on the results of the value chain analysis:

TABLE XXV. IDENTIFICATION OF IS SOLUTIONS BASED ON VALUE CHAIN ANALYSIS

Value Chain	Activity	Work Unit	IS Solution
Inbound Logistic	Student admission	Admission	Student Admission IS
Operation	Teaching and research activities	Academic, Study Program, and Research and Community Service	Academic IS, Research and Community Service IS
Outbound Logistic	Graduation and alumni tracking	Academic and other unit	Customer Relationship Management and Tracer Study
Marketing	Promotion and career center	Student admission and Partnership	Website and Career Center IS
Services	Community Services	RCS	Research and Community Service IS
Infrastructure	Laboratory, Library, Quality Assurance,	Laboratories Library Quality Assurance	Procurement IS, Library IS, Career Center IS,

	Partnership, and Finance	Partnership Finance	and Finance IS
HR Management	Staff administration	Vice Rector 1 and 2	Staff Administration IS
Technology Development	Network infrastructure	Computer Laboratory	TI
Procurement	Student tuition income, Grants for Research and Community Service, Facilities procurement	Finance and RCS	Finance IS Research and Community Service IS Procurement IS

TABLE XXVI. IDENTIFICATION OF CURRENT IS SOLUTIONS ON CAMPUS X

Current Trend	IS Solution
e-Library	Library IS (exist)
Mobile based e-learning	Web-based Online learning (Not exist)
Mobile application	Mobile based Academic IS (Not exist)

Based on the results of this study, it can be concluded that the current condition of Campus X Information System has not been able to assist organizations in achieving organizational goal. This can be seen from the results of the McFarlan Strategic Grid in Table XXVII.

TABLE XXVII. PROPOSED FUTURE INFORMATION SYSTEM MAPPING

Strategic		High Potential	
Level of Lecturer Workload	New	Mobile based Academic IS	New
Customer Relationship Management	New	Online learning based on social media	new
Quality Assurance	New		
Tracer Study	New		
Partnership	New		
Key Operational		**Support**	
Academic IS	Upgrade	Website	Upgrade
Student Admission	Upgrade	E-Journal	Upgrade
Research and Community Service	New	Online learning	Upgrade
		Library	Upgrade
		Finance	New
		Career Center	New
		Procurement	New
		Scholarship	New
		Staff Administration	New

V. CONCLUSION

Based on the results of this study, it can be concluded that the current condition of Campus X Information System has not been able to assist organizations in achieving organizational goal. This can be seen from the results of the McFarlan Strategic Grid mapping which states that of the six existing applications, none of the is included in the Strategic quadrant and High Potential quadrant. To overcome this, this study succeeded in compiling IS strategic planning for Campus X. The results of IS/IT strategic planning showed that there are 12 new IS applications, and the development of new network infrastructure as well as the addition of new human resources. To realize the IS/IT strategic planning, a schedule for the implementation of the IS/IT strategic planning is prepared for 5 years.

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