

Priority Analysis of IT Users' Needs By Utilizing DSS Tools As A Suggested Material In The Early Development of IT Strategic Plan University of Technology Yogyakarta

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ABSTRACT

Organizations that use information technology in conventional and do not have confirmed information technology planning will be left behind by its competitors. Numerous studies illustrate the negative consequences of the absence of the IT strategy. Although important, it is believed many organizations do not have it. Likewise University of Technology Yogyakarta (UTY), an organization engaged in education. This paper begins by determining the priority needs of users of IT, then combine with environmental conditions and SWOT analysis of information technology to be analyzed and aligned with strategic business planning UTY. Researchers use DSS (Decision Support System) tools to facilitate in determining the priority needs of users. This research resulted in the proposed initial development of IT Strategic Plan in accordance with business strategy UTY. With the approach to the priority needs of users of IT then IT Strategic Plan can be realized immediately. This is according to the organization that did not have the IT Strategic Plan.

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I. Introduction

As a guide in developing information technology, organizations need strategic planning of information technology with the best [1]. With the existence of a good IT Strategy, IT implementation that is often expensive can be managed and controlled risk [2]. The IT strategic plan is also needed to support the organization's strategic planning or often referred to as the Business Strategy of the organization. University Technology of Yogyakarta (UTY), as an organization engaged in education, until now has never made an IT Strategy. The absence of this strategic plan resulted in the development of information and information technology systems unplanned and unfocused. Development that is not based on the priority needs to have resulted in complaints from users will continue to appear because expectations are not met and plans must be changed frequently. With the problems that exist then the focus of this research are as follows:

- a. How to determine the priority of IT user needs in UTY by utilizing DSS (Decision Support System) tools.
- b. How to integrate the priority needs of IT users with IT environment conditions and IT SWOT analysis in UTY to make an initial development proposal of IT Strategic Plan in accordance with UTY Business Strategy.

This research is conducted in the hope that it can make suggestions to the decision makers in UTY, in this case, the top management, and SIMTI Manager, for the development of IT Strategic Plan. Benefits derived from this research are as follows:

- a. To know the priority needs of IT users in UTY.
- b. To get guidelines for early development of the IT Strategy for UTY so as to develop a truly better IT Strategy as a reference in continuous and sustainable IT development.

- c. The rest of the paper is organized as follows. Section 2 describes the theoretical background. Section 3 explains in detail the proposed research model. This is followed by research results and their details discussion in section 4. Finally, conclusions and recommendations are reported in section 5.

2. Rudimentary

2.1. Strategic Planning

The development of IS / IT strategy can be interpreted as thinking strategically and planning for effective management in the long run and the optimal influence of Information System (SI) and Information Technology (IT), including manual system and computer system, computer technology and telecommunication, organizational aspects of IT / IT management [1]. Strategic planning does not recognize standardized standards, and the process has unlimited variations. Each application needs to design its own variations according to local needs, circumstances, and conditions. In general, the strategic planning process includes the following elements: (1) vision and mission formulation, (2) external environmental assessment, (3) internal environmental assessment, (4) formulation of strategic issues, and (5) development (which can be supplemented with goals and objectives). The general pattern of the process is shown in Figure 1, which is also related to operational (tactical) and action/implementation planning.

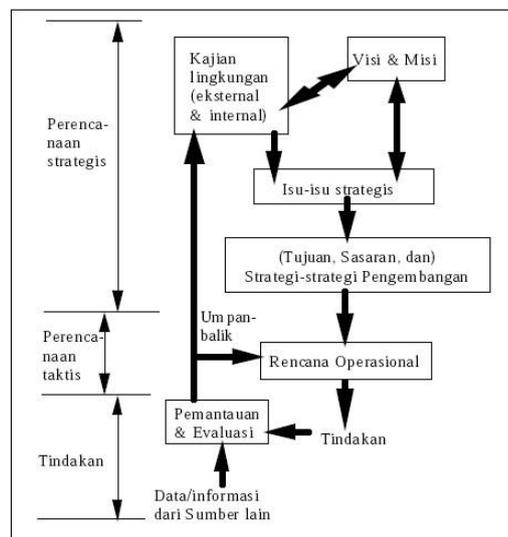


Fig 1: General Pattern of Strategic Planning

According to the general process, strategic planning has four elements, namely: (1) vision and mission, (2) environmental assessment results (external, internal, assumptions used), (3) strategic issues, and (4) development strategies.

2.2. The approach in Development Strategy IS / IT

According to Earl [1] in his study of a number of organizations identified five different approaches in the development of IS / TI strategies:

- a. Business led: mainly influenced by IT specialists.
- b. Method drove: the use of a technique to indentify the needs of information systems.
- c. Technological: IT planning is seen as an exercise in modeling processes and information.
- d. Administrative: the main objective is o define the IT capital and finance the budget plan and resources for achieving the acceptable application of the information systems, usually based on the user’s priority/needs.

- e. Organizational: the main theme of IS / IT development is derived from the business view that IS / IT can help the overall business objectives, as approved by the top management team.

In an empirical study using the Earl description, Doherty finds Organizational approaches, Business led and Administrative can be identified and very clearly differentiated in the 267 companies in the sample. The study also shows that organizations believe that they will be more successful in SI planning if they follow the Organizational approach as the first order, the second is Business led and the third Administrative.

On the other hand, it is written that it is well understood that organizations that do not have a strategic perspective on IS / IT and have not begun to develop an IS / TI strategy do not know how to get there. There is a change from the tactical plan to develop an information system based on a user's demand list, usually referring to a demand list, or from an IT technical infrastructure planner, to developing an IS / IT strategy that is very much aligned with business strategy. In the analysis of IS / IT strategy the current understanding of the IS / IT situation, which allows to be determined opportunities and threats and to recognize the strengths, weaknesses of business and operations of IS / IT.

2.3. Alignment of IT Investment With Business Strategy

There are several approaches to aligning IT investments with organizational business strategies, including IT investment mapping and multiple methodologies developed by Earl.

2.4. IT Investment Mapping (IT Investment Mapping)

In an IT investment mapping method, the benefits to the organization are seen as one of the most common attributes of IT investment. So one dimension of the map is the real level of benefit from increased productivity to business expansion. Figure 2 shows the map used in the hypothetical example to compare business strategy planning, with respect to investment orientation and desired benefits, to IT investment strategy planning [2].

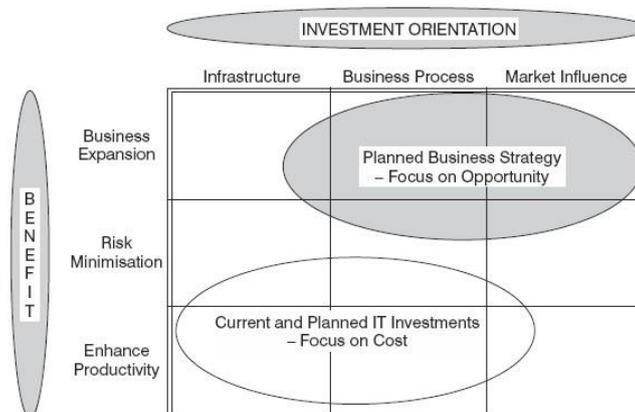


Fig 2: The investment map compares business planning and IT planning

Multiple methodology is a combination of top-down, bottom-up and inside out innovation methods. The objective of the three methodologies is to link the development of SI applications to business and organizational needs and strategies, through internal and external analysis of needs and opportunities [2]

2.5. Requirement Analysis of IT Users

In performing needs analysis, problems often arise. Some problems in needs analysis:

- a. Users do not know what they need;
- b. Users explain the needs in their own way so difficult to understand;

- c. Different users have a conflict of needs;
- d. Changes in needs during the analysis process.

If users do not understand what they need or are difficult to explain in a good way then it is necessary to offer the values or alternatives of choice for them to then choose what is needed, with the criteria set.

2.6. Feasibility Study of Information Technology

According to [3], stakeholders in information systems are people who have an interest in existing or offered information systems. There are five groups of stakeholders: (1) System owner, (2) System user, (3) System designer, (4) System builder, and (5) System analyst (system analyst). These stakeholders are instrumental in building or developing information systems. The development of information systems that not only based on the needs of the users but prior to the development needs to be a feasibility study of the product to be developed. In general, the criteria used in the analysis and IT feasibility study are (1) adding value / benefit, (2) the level of need (urgency or not), (3) feasibility / ease of operation, (4) availability of technology to meet the needs users, (5) time of manufacture or development and (6) cost of developing, operating and maintaining software and hardware.

2.7. Decision Support Systems

According to [4], the decision support system is a system intended to support managerial decision- makers in semi-structured decision situations. Decision support systems are intended as aids but do not replace their judgments. One of the most commonly used methods in the Decision Support System is AHP (Analytic Hierarchy Process). According to [5], the functional hierarchy with the main input of human perception becomes the main tool in this method. The existence of a hierarchy enables breaking down of complex or unstructured problems in sub-issues and then compiling them into a hierarchical form. AHP has many advantages in explaining the decision-making process, one of which is graphically depicted so easily understood by all parties involved in decision-making. Basically the steps in the AHP method include:

- a. Preparation of the hierarchy of problems encountered.
- b. Assessment criteria and alternatives
- c. Priority Determination
- d. Logical Consistency

To simplify the calculation process in the AHP method can be used tools that are often called the Tools DSS. By utilizing tools, this is in addition to quick calculations that can also be done on certain objects only so that they can be done a more detailed analysis. The workings of DSS Tools that support AHP theory and model basically include three things: decomposition, pairwise comparative assessment, and synthesis. DSS tools used in this research are Expert Choice 11.0.

3. Proposed Research Model

The materials of this research are data, either in the form of primary data or secondary data. Primary data is data of IT condition in UTY obtained directly by interview method and questionnaire, while secondary data is obtained from literature data tracking either book, Renstra document or previous research result. The tool used in this study is a computer with enough specifications to run the DSS Tools application program on top of the Windows XP Professional operating system. While the application program used in this research is Microsoft Excel 2003, SPSS 15.0 and Expert Choice 11.0. The main stages in this study are as follows.

- a. Identify the needs of IT users, the output is the priority needs of IT users.
- b. Identify the IT SWOT, its output is an IT SWOT analysis.
- b. Identify the IT environment, its output is a description of the environmental conditions of IT.
- c. Identification of Business Strategic Plan, its output is result of Business Renstra identification.
- d. Analysis and alignment. The outputs of stages 1, 2 and 3 are aligned with the output from

stage 4 to generate the IT Strategy proposal.
 The stages of this study in more detail are illustrated in Figure 3.

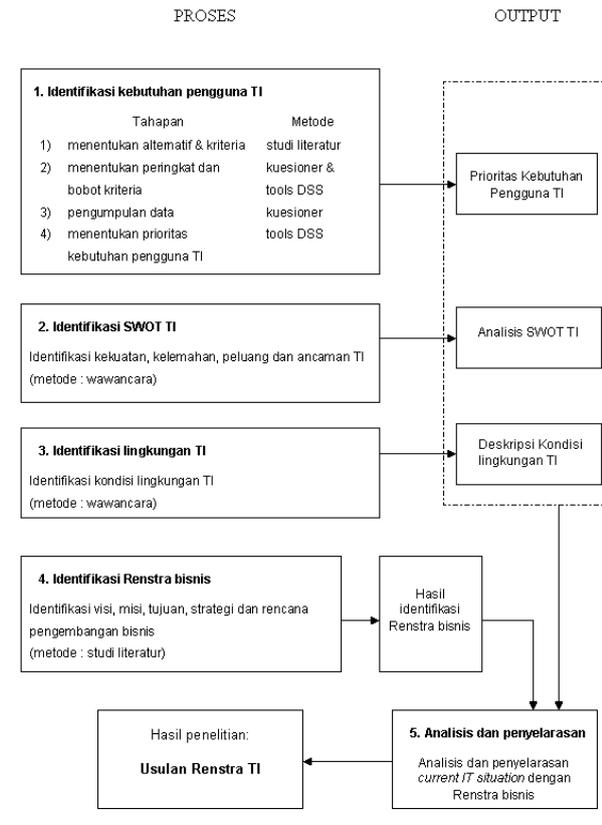


Fig 3: Stages of research

3.1. Identify IT Users Needs

There are several stages in identifying the needs of IT users, as follows.

a. Define Alternatives and Criteria

Alternatives derived from literature studies plus alternatives are viewed in accordance with the conditions in UTY on the basis of interviews with stakeholders. The criteria used in assessing alternatives are obtained through literature studies.

b. Determine Rank and Weight Criteria

Selection of sample applied is judgment sampling, that is a group of stakeholder of information technology and they are the decision maker in developing of IT Strategy. The technique used in ranking and weighting in this research is by the AHP method.

c. Data Collection

The data collection method used is by using a questionnaire. In order to be measured the questionnaire items require a scale. In this study, the scale used is a Likert scale (Likert scale). This scale is used to measure the response of subjects into 5 points of scale at the same interval. The data type used is interval data type. Scores given for each variable assessment interval are between 0 and 1 because the Expert Choice scoring system, the DSS tools used in this study, requires inputs 0 to 1. Due to scoring differences, it is necessary to convert scores as follows:

Table 1. Convert Likert scale scores to scores on Expert Choice apps

Likert	Scale	Expert	Choice
5		1	
4		0	
3		0	
2		0	
1		0	

Respondents in this data collection were selected who understood information technology. Respondents were IT specialists (2), faculty (8), management staff (3), operational staff (4), and students (30).

d. Determining The Priority of IT Needs

At this stage, the data obtained from the respondent's input into the DSS tools that Expert Choice 11.0 to calculate the score then determined sorted by the priority ranking of UTU IT user needs. Examples of data input and score in Expert Choice are shown in Figure 4 and Figure 5.

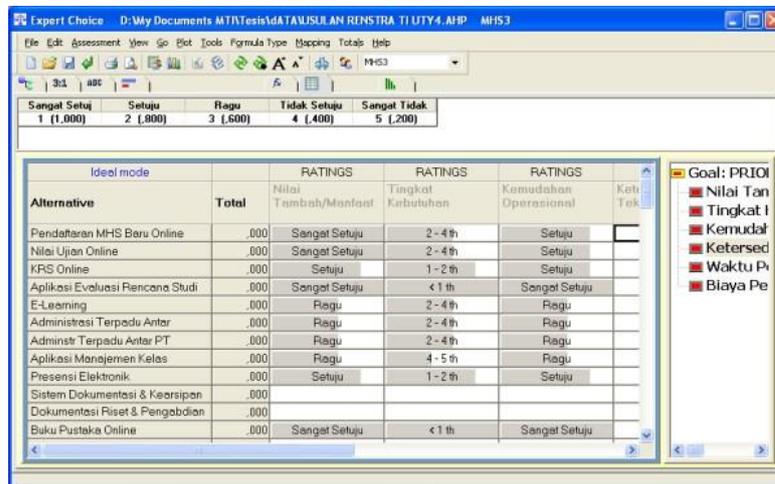


Fig 4: Example of questionnaire data input on Expert Choice

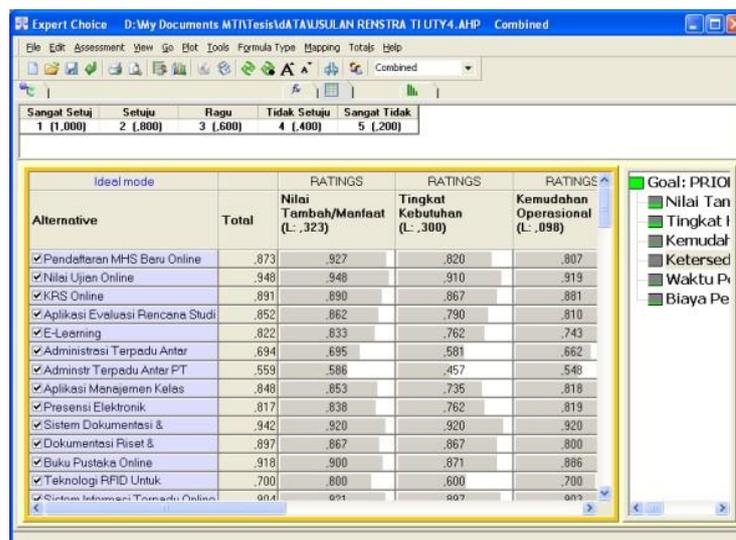


Fig 5: Example of a score on Expert Choice

3.2. Identify the IT SWOT

SWOT identification is performed to identify IT strengths, weaknesses, opportunities, and threats in UTU. At this stage, an interview is conducted with SIMTI UTU Manager.

3.3. Identify the IT Environment

The identification of the IT environment is done to determine the conditions of IS / IT and the environment that influence its development. This identification is done by interviewing SIMTI UTU Manager. This interview technique is done because there is no record of IT conditions in UTU.

3.4. Identification of Business Strategic Plan

At this stage, a literature study of the UTY Business Strategy is conducted to find out the vision, mission, strategic issues, strategies and development plans of UTY. The results of this identification will be used as a reference in preparing a proposal for the initial development of the IT Strategy.

3.5 Analysis and Alignment of Current IT Situation with Business Strategic Plan

The results of the research or output at stages 1 to 4 are used for analysis and are aligned between the current IT situation with the UTY Business Strategy to generate the initial development proposal of IT Strategy UTY.

4. Research Results and Discussion

4.1. Ranking and Criteria Weight

The result of filling the weighted questionnaire is input into the DSS tools Expert Choice 11.0. After all, data entered done calculations and obtained the final result rank and weight criteria as shown in Figure 6.

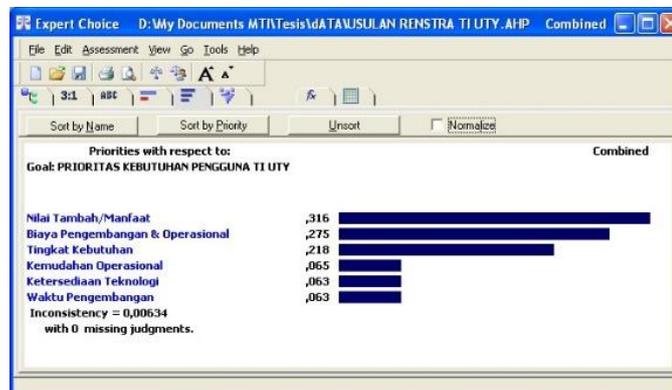


Fig 6: Ranking and Weight Criteria

It appears that the rankings in the weighting sequentially are benefits, development and operational costs, level of need (urgent or not), operational ease, availability of technology and development time. This is consistent with the theory that with the priority needs approach, the cost factor will be a major consideration factor. The inconsistency in this weighting is 0.00634, it is in accordance with the requirement that the weighted inconsistencies in the AHP method should not exceed 0.1 [6,7]. One of the advantages of Expert Choice is that scoring can be selected for certain criteria, certain alternatives or particular respondents (participants). This is very helpful for the purposes of more in-depth analysis.

4.2. Determining the Priority of It User Requirements with DSS Tools

The data from the responder is input into Expert Choice DSS tools to be processed to generate the priority of IT users' needs in UTY. One of the advantages of Expert Choice is that scoring can be selected for certain criteria, certain alternatives or particular respondents (participants) [8]. As can be seen in Figure 7 priority ranking of the needs of IT users in the sequence are the value of online examination, documentation and filing system, online library book, asset data collection system and so on. It is generally seen that users want an online system, a good documentation system, and asset registering applications and human resource performance scores.

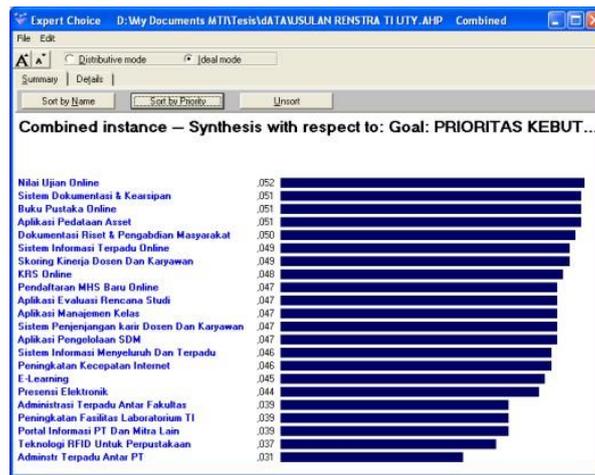


Fig 7: Ranking of the priority needs of IT users, taking into account all the criteria

4.3. Analysis and Survival

Referring to the result of research that has been done, that is the result of identification to the priority of IT user needs, IT SWOT Analysis, IT environment condition and Business Strategic Plan of UTU, a thorough analysis of the result of the research is conducted and then compiled proposals that can be used as a foothold in early development of IT Strategy in UTU.

4.4. ICT vision

Considering UTU's research results and vision, the proposed vision for the IT Strategy is "ICT with good and integrated governance to realize an important and superior university by 2015". The proposed ICT vision is intended to enable ICT vision to align and support UTU's vision as well as improving the weaknesses in the IT SWOT analysis.

4.5. ICT Mission

The proposed ICT mission is done by referring to the UTU Business Strategy and analyzing the unrealized part of the UTU planning. After that an analysis of the priority needs of users, the condition of the IT environment and IT SWOT analysis.

ICT MISSION is proposed to support the realization of the development plan in the UTU Business Strategy as follows.

- Develop ICT to support academic quality improvement and provide fast and accurate service.
- Develop ICT to improve the performance and discipline of faculty and employees with the application of scorecards.
- Develop ICT for effective and accountable asset management improvement.

4.6. ICT Strategic Issues

In proposing ICT strategic issues, a review of UTU strategic issues and analysis of key issues or issues emerged in SWOT analysis, IT environment conditions and IT users' priority needs in UTU. Reviewing it is proposed to take on a strategic issue:

- Implementation of integrated ICT to improve academic quality by providing support for access to teaching materials quickly and easily and the development of e-learning with good design to improve the ease of teaching and learning process
- Development of information systems with client-based service applications with anytime and anywhere access to provide fast and accurate service.

4.7. ICT Development Strategy

From the results of the research proposed IT development strategy as follows.

- Strengthening of Communication Network. This is very important to support the

development of online systems as per the needs of IT users. The reinforcement of the proposed network includes intranet and internet networks.

- Data Management and Integration. Data integration is needed for data continuity and consistency. Continuity of data, for example, is required since a student is enrolled to become alumni. Data consistency is required for uniformity of data between parts for the same object.
- Development of Client-Based and Web-Based Information Systems. It is intended to provide services that are fast, accurate and user-friendly, more user-oriented information system development will be more appropriate. Need to be designed applications that can meet the needs of user information and interfaces that provide user security.
- ICT Governance. Improving ICT governance is essential, especially if ICTs support UTY's business objectives. Improvements to the organizational conditions in SIMTI, which are part of the weaknesses in the SWOT analysis, need to be done immediately.
- Financing. As an important part of supporting the business, there should be attention to funding for IT development in UTY. Financing for IT development that has not become a priority is one of the weaknesses in the SWOT analysis that has been done.

4.8. ICT Development Plan

IT Development Plans are prepared taking into account IT user needs analysis, IT development strategy, current IT situation, and UTY Business Strategy. The IT Development Plan is divided into integration and data management, strengthening communication networks, developing information systems and ICT governance.

- Integration and Data Management
Integration and data management should be done prior to the development of information systems. Considering the needs of IT users who want an online application and a good documentation system integration and data management should be done as a first step in IT development.
- Strengthening of Communication Network
Intranet network between campus locations is included as one of the weaknesses in UTY IT SWOT analysis. This weakness should be addressed immediately by building connections between campus locations as this is indispensable for data integration. Ideally this intranet network is built in conjunction with the data integration process. Increased internet speed is also a top priority in IT development plans. If considering its usefulness according to IT users, for academic matters, the increase in internet speed is ranked 3 (Figure 8). This means the internet with a speed of 2.5 Mbps for 3 campus locations perceived less by the user.

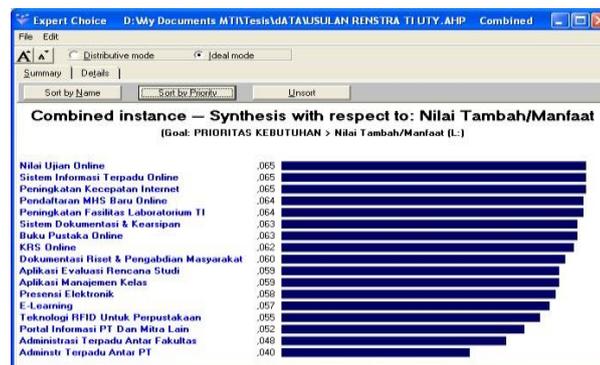


Fig 8: Ranking of the priority needs of IT users, especially those related to the academic field, takes into account only benefit criteria

- Information System Development and Facility Improvement
After the infrastructure improvements are made, the next stage is the development of the system in accordance with the priority needs of users that are aligned with the UTY Business Strategy. In the analysis of the priority needs, in addition to the overall analysis also conducted a

separation between the needs associated with academics and the needs associated with assets and human resources for easier analysis.

4.9. Academic Requirements

The online system and documentation system and sequentially are ranked at the top in the IT user needs analysis (Figure 8). Taking into account the current IT situation and UTY Business Strategy can be analyzed:

- Lack of access to anytime and anywhere is a factor that is still lacking for service and learning;
- One weakness in the SWOT analysis is that electronic data has not been fully integrated. This brings with it the consequence of a good document and data archiving system is difficult;
- One of the development plans in UTY's Business Strategy is to develop and implement integrated

SIMPT (Information System and College Management) to provide fast and accurate service. The purpose of the program is to provide services effectively and efficiently.

Of these three points indicate that the online requirement, documentation system and internet speed improvement are in harmony with the condition in UTY so it is worth prioritizing in system development and proposed application development in sequence as follows.

- Application development of test scores and books.
- Documentation system for archives and documentation of research and community service.
- The integrated online information application and KRS online filling system is the next priority.
- New student registration and online tests are developed in the next sequence.
- E-learning, according to priority needs analysis score is ranked 13 (figure 8). The ratings show that e-learning is not a priority for immediate realization. This is different from the UTY Business

The strategy that sets the development of up-to-date and information technology-based teaching materials through the development of e-learning based learning. Table 2 shows that in terms of technology, time and development costs are not a problem. Respondents agree that e-learning is useful but doubts about ease in e-learning operations may make respondents judge that this app is not yet urgent to be realized.

Table 2: Scores based on questionnaires filled in by respondents for e-learning applications, viewed from each criterion

Crite	Score	Meaning of scores
Value Added / Benefit	0.834	Agree
Level of Need (urgent or not)	0.761	Embed 2 – 4
Operational Ease / Feasibility	0.741	Doubt
Availability of Technology	0.9	It's available in UTY
Development Time	0.9	< 1 year
Development and Operational Cost	0.9	< 10 million

In accordance with the Strategic Plan of UTY Business, e-learning applications should be developed but gradually and by considering the comfort aspect in its operation to be accepted and utilized by the users.

- Classroom management applications for lecturers' settings, classrooms and lecture schedules, and electronic presenting applications scored low. The results of the questionnaire show that although the respondents agree that the application is useful and easy to operate but have not considered very urgent to immediately realize and may assume that the application can still be done with the existing system.

Other applications such as integrated applications between faculty and inter-college that offer the possibility to be able to take courses across the faculty or cross-college is not something that is needed by the user. Similarly, information portals between universities and other partners, such

as companies that work with UTY in labor recruitment information. Utilization of the application is also not too correlated with the strategy or plans in the Business Strategic Plan, so it is not urgent to do the development of the application.

4.10. Needs related to Aser and HR

- a. The asset record and scoring application of lecturer and employee performance are ranked in the priority requirement (Figure 8). This is in line with the UTY Business Strategy which mentions the development of effective and accountable asset management on the development strategy and puts improving the discipline of lecturers and employees by applying the scorecard on its development plan.
- b. Integrated information systems related to the functions of marketing, administration, human resources, finance and accounting, asset management and others, is a strategic application because, with top and integrated application, top management will be faster and more accurate in making decisions but ranked 14th in the priority needs.

From the results of the questionnaire (Table 3), it appears that the responder, in this case, the management staff, agrees that the application will provide benefits but doubt the ease of operation of the application. Therefore, this application should be realized because of its strategic nature and the user agrees that the application is beneficial but must be created with attractive and easy-to-use interface design to answer any doubts about its operational ease. Views with digital dashboard models may be appropriate because users get the information they need without having to provide feedback.

Table 3: Scores based on questionnaires filled with respondents for a comprehensive integrated information system application, viewed from each criterion

Crite	Score	Meaning of score
Value Added / Benefit	0.8	Agree
Level of Need (urgent or not)	0.733	Be realized 2 - 4 years
Operational Ease / Feasibility	0.666	Doubt
Availability of Technology	1	It's available in UTY
Development Time	1	< 1 year
Development and Operational Costs	1	< 10 million

4.11. Increasing Internet Facilities and It Laboratories

It has been described above that the speed of the internet and the improvement of IT laboratories are needed by the users (Figure 8) but taking into account all the criteria of the two are in the middle/bottom rank (See Figure 7). This is because the cost factor is greater than if developing other applications so the overall score becomes low. A questionnaire design that does not distinguish between the cost of providing hardware and the development of an application module causes this alternative to have a low score. Considering the aspects of benefits and the urgency of needs according to the respondents then this alternative should be considered for immediate realization. Looking at the IT SWOT analysis, financing for IT development is still a factor of weakness because it has not become a priority for universities, therefore the success of both projects is highly dependent on decision makers at the University.

4.12. ICT Governance

ICT governance should be planned early in ICT development because good development processes will work if there is good governance management [9]. In the SWOT analysis, the management of IT governance is part of the weakness that needs to be improved.

From the results of these analyzes, the proposed IT application development plan in UTY is divided into 2, which is more bureaucratic operational and more strategic and has the potential to provide a competitive advantage, as follows.

Applications that are operational bureaucratic.

- a. Application of test scores and online library books as well as archival and research documentation applications.
- b. Asset collection and scoring application of lecturers and employees for the effective and accountable asset management as well as improving the performance of lecturers and employees with the application of scorecards.
- c. The integrated KRS application and system between academic, library, finance and related banks are developed gradually and carefully.
- d. Improvement of IT lab facilities and internet speed is proposed to be developed in conjunction with the above application development.

Applications that are strategic.

- a. *Digital Dashboard*. This application is developed on the basis of an integrated information system related to the functions of marketing, academic, administration, human resources, finance and accounting, asset management and others. This form of application can be a kind of EIS (Executive Information System) or MIS (Management Information System). Existing information is real-time online so the information that comes up is really up to date. Existing information for example:
 - Financial information, such as total student income, financial ratios, current financial condition and so on;
 - Academic information, such as number of students, average Achievement Index, attendance of lecturers and students, number of scholarships and so on;
 - Asset and HR information, such as employee and lecturer performance, asset conditions and developments, and so on;
 - Information for marketing, such as potential areas, student segments, most successful marketing programs and so on;
 - The right to such information should be regulated according to its authority. This app is strategic and can be useful for generating ideas for competitive advantage as it supports top management to make quicker, more precise and accurate decisions.
- b. *E-learning is strategic because it is believed to be a model in the lecture process in the future*. That means colleges that apply early are one step ahead of others. This application should be developed in stages with a continuous evaluation to ensure the implementation of the e-learning pattern and to answer the user's doubt about the ease of operation.
- c. Application registration and test new students online. This application is useful for closer between UTY with prospective customers, in this case, prospective students, especially those from areas far from the intended college, easy in the registration process and save transport costs. This app should be designed to be easy to use, with sufficient technology support so that the test results are valid. The development of this application should still consider the verification of the authenticity of test participants to ensure the quality of selection.

The development plan is a proposal after analyzing the priority needs of IT users, considering the environmental conditions of IT and IT SWOT analysis and aligning with the UTY Business Strategy.

5. Conclusion and Recommendation

In this research, the priority determination of IT needs is done by providing alternatives to the users, then the user scores for each criterion, which has been given weight, to assess the alternatives. The utilization of DSS tools is very easy in calculating the final score to determine the priority ranking of user needs. Preparation of proposals for the initial development of UTY's IT strategic plan begins with an analysis of the priority needs of IT users, taking into account the SWOT analysis and environmental conditions of IT in UTY, then aligning the current IT situation with the UTY business plan. The results of the analysis and scoring of the questionnaire show that in general the priority of IT user needs in UTY, i.e. online system, documentation, and employee and lecturer performance scores, in accordance with UTY Business Strategy. The preparation of IT Strategic Plans with priority approach of IT user needs has advantages and disadvantages as follows: (1) The advantage is that IT Strategy can be realized soon and give an idea of step in IT development. This approach is appropriate for organizations that do not yet have an IT strategic plan. (2) The

shortcomings are more bureaucratic and less strategic, as seen from more strategic applications such as e-learning, enrollment and new online student tests and integrated and comprehensive information systems, are in the middle and lower rank.

Although the analysis is based on existing data but in this research cannot be avoided subjectivity factor in conducting analysis for the preparation of the initial proposal of IT Strategic Plan because it is done individually. The following are suggestions for further study: (1) More detailed criteria are required in order to perform a more detailed analysis of the priority of the resulting needs. The ability of DSS tools that allow for multi-level criteria provides an opportunity to do so without difficulty. (2) To develop a more detailed and complete IT strategic plan and to avoid subjective factors, the results of this study should be followed up by organizing organizational decision-making meetings, such as Focus Group Discussion (FGD), to analyze in more depth the proposals generated in this study.

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