



TECHNO UNIVERSITY TO INCREASE THE QUALITY OF ISLAMIC HIGHER EDUCATION IN INDONESIA

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ABSTRACT

In line with the mission of the Indonesian Ministry of Research, Technology and Higher Education in increasing access, relevance, and quality of Higher Education to produce quality human resources, the aims of this study is to explore the concept of techno university that developed by reputable and international campus, to reveal the management strategy of public institutions in improving technology-based service standards. And also, to discover the steps of implementing techno university and technology-based public strategic management in higher education, especially for Islamic religious colleges. The case study of this research is in UIN Sunan Gunung Djati Bandung, Indonesia. The method that used in this research is qualitative descriptive where the researcher explains and describes in depth related to strategic policies and management. We also use TAM (Technology Acceptance Model) as research method to implement existing system to increase the quality of higher education using technology. The result of this study is requirement analysis and design of techno university concept for higher education quality assurance.

Keywords: Higher Education Quality Assurance; Strategic Management; Technology Acceptance Model; Techno University.

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1. INTRODUCTION

Techno University is currently being echoed in higher education. The concept of a techno university is not only associated with a qualified technology support, but also an effective and efficient system and management of universities. This is evident from some of the world's universities which are currently in the highest ranking dominated by universities that implement the Techno University concept according to THE (The Higher Education), QS World Rank, ARWU and Webometrics, among others: Massachusetts Institute of Technology, Sandford University. US; University of Cambridge, England; Nanyang Technological University, Singapore; and ETH Zurich Federal Institute of Technology, Switzerland [1]. Those universities are at the forefront of several assessment standards by various ranking organizations. They have their own standards in assessing, including from research, Nobel laureates, the number of international students, service quality, and others.

Some of universities in Indonesia have not been able to penetrate even the top 100. The Bandung Institute of Technology is in position 215, Gadjah Mada University in positions 401-450 and University of Indonesia in positions 401-450 [2]. Unfortunately, the rankings of Indonesian universities are far below, losing to universities from Singapore, Japan and China which are in the top 10. In fact, Malaysia places its universities above Indonesia. This phenomenon is the biggest challenge for higher education in Indonesia to continue to improve its quality. Then, where is the position of Indonesian Islamic religious colleges? Internationally and even nationally, Islamic religious colleges in Indonesia still cannot compete with other universities, especially in the field of educational technology and also the quality of their education service management system. In fact, the role of Islamic religious colleges is very important and strategic for the progress of the nation, especially in instilling noble character and good moral education. These essential values become very important and will be very extraordinary when integrated with other scientific values.

There are at least three important points why Islamic religious colleges are a crucial institution for nation building, among others: first, Islamic religious colleges are institutions that become the transmission of knowledge by combining Islamic, scientific and technological sciences, which aim to benefit the community and encourage the progress of the nation. Second, the spearhead of the reform movement of Islamic thought in response to the dynamics of modernization, while remaining grounded in the traditions and treasures of classical Islamic thought such as the ushul fiqh rule, maintaining good old traditions, taking better new thoughts. Third, becoming an intermediary to guide the community to meet socio-cultural changes in order to remain in the frame of Islam so that Muslim communities can appreciate the modernity of the times without having to lose their Islamic identity.

Techno university concept is the important thing to increase the quality of higher education, especially for Islamic religious collage that must do acceleration. Therefore, this research explores the techno university concept that developed by reputable and international level campuses to be adapted in Islamic religious college, to reveal the strategy management of

public institutions in improving technology-based service standards to be compared and adapted, and to find out the steps for implementing techno university and technology-based public strategic management in Islamic religious colleges.

2. METHODOLOGY

The research design that used in this study is descriptive analysis. Qualitative methodology is a research process that produces descriptive data in the form of written or oral words from people and observable behavior [6]. Based on this understanding, the researcher intends to explain and describe in depth related policies and management strategies that implemented in several reputable universities and institutions. The technique that used to collect data in this study is by interview, observation and documentation. The data analysis technique that used in this study is data analysis techniques, among others [7]: Data Collection, Data Reduction, Data Presentation and Conclusions and Verification (Fig. 1).

The raw data that has been obtained regarding technology and strategic management from the research sites is reduced through the stages of data analysis (coding, categorizing, comparison, integrase and interpretation of data) which will then be presented in the form of descriptions, so that the conclusions can be drawn and then verified to produce completely. Then, the results of the description and conclusions will be tried to be adjusted and implemented in the case study of research (UIN Sunan Gunung Djati Bandung) which in the end will see which results are successfully implemented and which are not so that it can be used as a reference for further research.

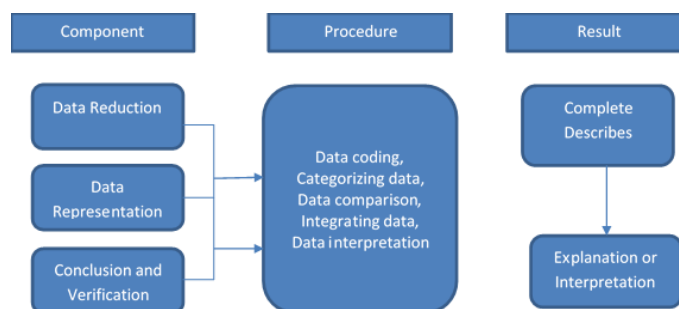


Figure 1 Analysis Data Flow [7]

The flow process of this research is combined with TAM which is described in Fig. 2. TAM is a model that analysis the existing system or technology (system features and capabilities), elicitate the motivation to use the system, then implement the evaluation result of existing system into another or new system [8]–[14]. The main point in TAM is adapt process of existing system, there are pre-adapt, adapt, and post-adapt the existing system.

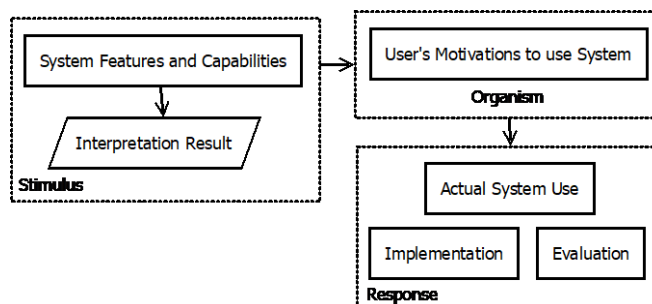


Figure 2 Flow of Research Implementation with TAM

3. RESULT AND DISCUSSION

3.1. Analysis of Techno University

Technology is defined as the results of human work developed to solve various problems and overcome the limitations of humans themselves [15]. The concept of technology is generally related to products and processes [16], namely hardware or material (physical objects), software ie messages or information contained therein [17], and brainware or accompanying intellectual device. Technology is an implication of organized and systematic science in completing practical tasks. Substantively technology is a product that aims to improve and facilitate performance, a process that increases added value, and a system where a product and process is developed or produced [18]. From some general understanding of technology, the understanding of educational technology can be viewed from the level of processes and products.

The Association of Education Communication & Technology (AECT) argues that educational technology is the study and ethics of practice to facilitate learning and improve performance by creating, using, and managing technological processes that are appropriate to resources [19]. Whereas several argue that educational technology relates to theory and practice in the design, development, utilization, management and evaluation of processes and sources for learning [20]. Educational technology includes [21]: a systematic process that involves the application of knowledge in an effort to find solutions that can be used in problem solving learning. A product such as a textbook, audio program, television program, computer software and others. A profession consisting of various occupational categories; and is a specific part of education.

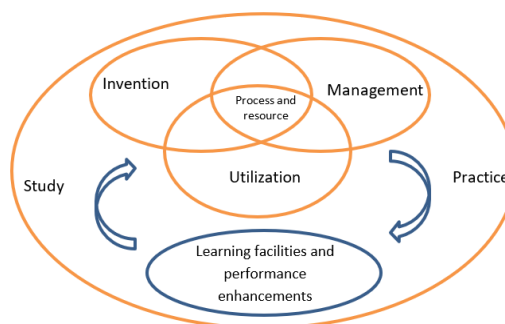


Figure 3 Techno University Definition by AECT

From Fig. 3, it is clear how technology plays a role in the world of education not only at the level of the learning process but also at the level of management and policy. All of these things clearly lead to the quality of education itself. This educational technology is also a solution for universities in Indonesia to be competitive and quality in line with the increasingly challenging demands of globalization. Technology in higher education in Indonesia is a strategy that will create an accountable tertiary institution considering that universities have great social responsibility in the progress of the nation. Technology plays an important role in various aspects, such as research quality, teaching quality, innovation, facility, and internationalization [22]. For example, the use of multimedia in the learning process is more effective than the conventional learning process [23]–[25]. In the learning process, multimedia has been proven to be able to create fun learning atmosphere [26], increase the effectiveness of learning [27], enhance learning motivation [28], create student-centered learning [29], improve the level of understanding [30], and make efficient investment of learning means [31].

In developing technology, especially in Islamic universities, redefinition and implications are needed that are harmonious and appropriate considering there are several unique components in Islamic higher education compared to public universities. Therefore, the management of strategies in technology-based services is also an aspect that must be studied.

This strategy management is defined as a process of determining the plans of top leaders who focus on the long-term goals of the organization, along with the preparation of a way or effort to achieve these goals [32]–[34]. On the other hand, management strategy is a set of actions and decisions that produce a formula and the implementation of plans made to achieve company goals [35]. Strategic management is a way to respond to business opportunities and challenges. So in general, management strategy is a method chosen by a company or organization in acting or deciding to respond to opportunities and challenges, in order to exist and win the competition.

3.2. Existing System Analysis (Stimulus/ Pre-Adapt)

UIN Sunan Gunung Djati Bandung has begun to show positive performance at the end of 2017. This can be seen from the results of achieving the UIN strategic plan which increased significantly this year. Based on the results of the Main Work Indicators and Special Work Indicators in 2017, UIN Sunan Gunung Djati Bandung succeeded in increasing quality assurance as more than 70% of study programs were accredited A and 16 work units that had ISO standards in the previous year only 3 units [36]. Besides that, UIN Sunan Gunung Djati Bandung also succeeded in increasing the capacity, quality and productivity of research, community service and publication of scientific works, one of which is the target of 100 researchers who have Scopus is already reached 80%. It's just that for the aspect of service in this case related to an integrated and high-tech service system, UIN Sunan Gunung Djati Bandung still has not shown a significant increase. This year only up to 50% of the target achievement was five years ago. Therefore, there is a need for a stimulus to pursue a qualified technology-based service target.

UIN Sunan Gunung Djati Bandung has a considerable opportunity to become a role model for Islamic universities with a techno university title because it has succeeded in becoming one of the campuses that gets overseas grant loans with one of its programs, smart campus which focuses on developing information and communication technology [37]. This reinforces the reason for the need for a study on improving the quality of Islamic higher education that utilize techno university concept, which is a campus that has qualified technology and quality management strategies but still based on Islamic values. Therefore, this research was conducted to meet these needs.

There are at least 20 online information systems in UIN Sunan Gunung Djati Bandung that operated well, among others [38]: Academic Information System, Student Information System; Finansial Information System; Personnel/ Human Resource Information System; Student Executive Board Information System; e-Book/ e-Library; Student Admission Information System; Quality Assurance Information System; Research and Community Service Information System; 8 Graduate Faculty Profile System; and Post Graduate System. The current needs system among others Lecturer Profile Portal dan can assess all of lecturer activity, such as teaching, research, and community service. And the important system is Quality Assurance System that integrate all of system and can monitor and evaluate all of campus and human resources activity. This system is designed in order to achieve the annual achievement target plan indicators and improve the quality of higher education in Industrial 4.0 era. Because Indonesian needs to improve the quality of workforce skills with digital technology and innovative.

3.3. The Needs of Higher Education Quality Assurance (Organism/ Adapt)

Today, higher education in Indonesia needs to reform so disclosed to produce graduates, research, technology transfer to community, higher education also produce innovation that can improve community and nation well competitiveness. There are three responsibility of university in Indonesia, among others teaching, research, and community service. To reach competitive higher education that utilize technology with good quality, every supporting activities at university must be under quality control. There are 6 supporting activities that support three responsibility of university (main process), among others [39]: academic administration; finance and accounting; human resource; student service; relationship with industry; and campus infrastructure.

Information technology has role, function, and purpose to accelerate main and support activities in higher education with improving campus service and fulfilling information need for efficiency an effectiveness of teaching, research, and community service [39], [40]. There are several application that can be used as the concept of techno university and support all of university activities and units (Fig. 4).

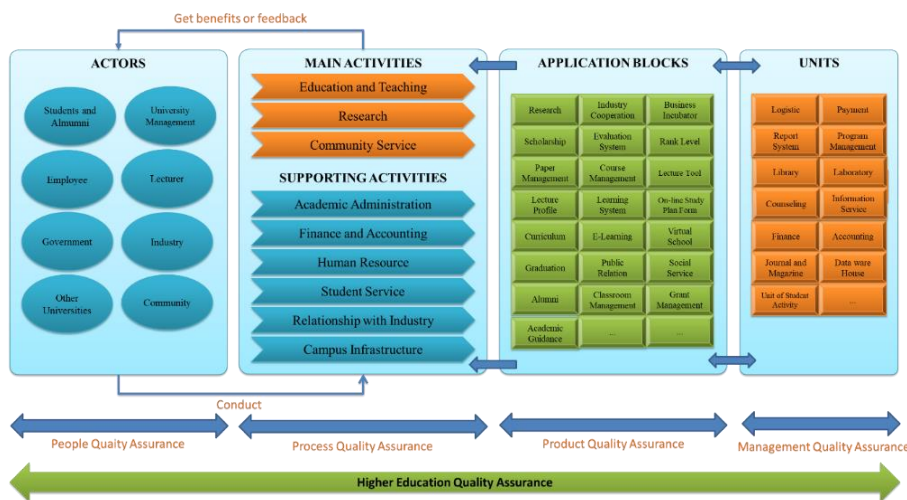


Figure 4 Higher education quality assurance based on techno university concept

Fig. 4 describes about the relationship between actors, activities, application, and unit. Where, actors conduct the activity in accordance with their needs and responsibility, and the activity is possible give the benefits or feedback to actors. Then, every activity is utilized the application based on techno university concept, where every application is accessed at university unit in accordance with its needs. In quality assurance, process, product, and people must be assess with measurable indicators [41]. Based on Fig. 4, group of actors, group of activities, group of application, and group of unit must be reach the quality. From Figure 4 also provides the list or detail of process, product, and people that related with techno university and need to be controlled to reach good quality.

3.4. Requirements Result and Evaluation (Response/ Post-Adapt)

Based on the needs of higher education quality assurance that explain in section 3.3, this research propose the higher education quality assurance system architecture that integrate all of application which is utilized for supporting activities. The system architecture is provided in Fig. 5. For the fuctional requirements of the higher education quality assurance system is provided in Table 1.

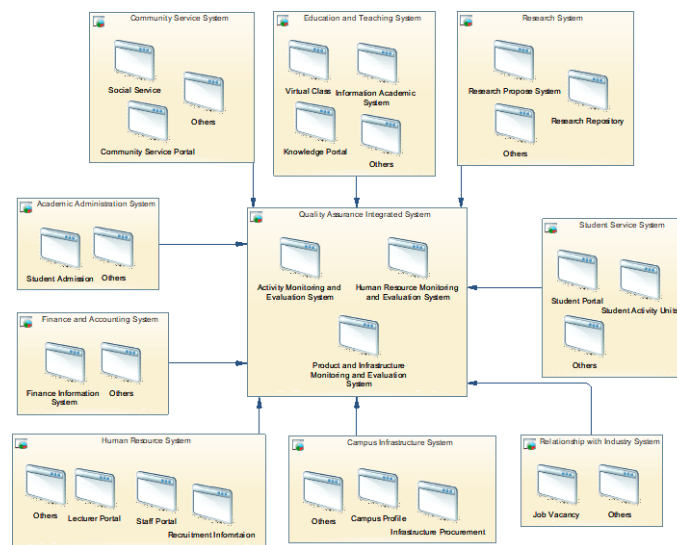


Figure 5 Higher education quality assurance architecture system

System architecture of higher education quality assurance can be implemented in UIN Sunan Gunung Djati as Islamic higher education. Because almost every unit in UIN Sunan Gunung Djati Bandung has been utilized application as the product of techno university concept. However, there has not been had integrated system that control the quality of each system that related with all of actor, process, and the system itself yet.

Table 1. Fuctional requirements of the higher education quality assurance system

Req. ID	Requirement Description
R-01	Higher Education Quality Assurance System (HEQAS) able to monitor, control, and evaluate student and alumni profile.
R-02	HEQAS able to monitor, control, and evaluate lecturer profile.
R-03	HEQAS able to monitor, control, and evaluate industry profile that related with university.
R-04	HEQAS able to monitor, control, and evaluate community profile that related with university.
R-05	HEQAS able to monitor, control, and evaluate other university profile that related with university.
R-06	HEQAS able to monitor, control, and evaluate university management or unit profile.
R-07	HEQAS able to monitor, control, and evaluate employee or staff profile.
R-08	HEQAS able to monitor, control, and evaluate government profile that related with university.
R-09	HEQAS able to monitor, control, and evaluate education and teaching activities.

Req. ID	Requirement Description
R-10	HEQAS able to monitor, control, and evaluate research activities.
R-11	HEQAS able to monitor, control, and evaluate community service activities.
R-12	HEQAS able to monitor, control, and evaluate academic administration activities.
R-13	HEQAS able to monitor, control, and evaluate finance and accounting activities.
R-14	HEQAS able to monitor, control, and evaluate human resource activities.
R-15	HEQAS able to monitor, control, and evaluate student service activities.
R-16	HEQAS able to monitor, control, and evaluate relationship with industry activities.
R-17	HEQAS able to monitor, control, and evaluate campus infrastructure
R-18	HEQAS able to visualize and generate report the result of monitoring, controlling, and evaluating the university actors.
R-19	HEQAS able to visualize and generate report the result of monitoring, controlling, and evaluating the university activities.
R-20	HEQAS able to visualize and generate report the result of monitoring, controlling, and evaluating the university products.
R-21	HEQAS able to generate report the result of monitoring, controlling, and evaluating based on standard quality assurance measurement, such as ISO and others that is used in university as measurable indicators.

4. CONCLUSION

Techno University is one of the strategic approaches to improve Islamic Higher Education quality. The effectiveness of techno university implementation needs to be conducted by TAM analysis to ensure that any changes or improvements to the system based on the use of technology that can be implemented properly and holistically.

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