

Information System Based Excellent Higher Education Model

by Rz Abdul Aziz

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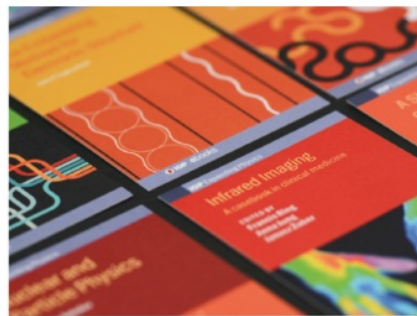
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Information System Based Excellent Higher Education Model

¹Anuar Sanusi, ²Suhendro Y. Irianto, ³Herlina, ⁴R.Z.Abdul Aziz

^{1,3}Department of Management, Darmajaya Informatics and Business Institute

^{2,4}Department of Informatics, Darmajaya Informatics and Business Institute
Jalan Z.A. Pagar Alam No.93, Bandar Lampung, Lampung, Indonesia

Anuarsanusi@darmajaya.ac.id

Abstract. The problem of this study was to find the tool to measure Higher Education. There is no standard of measurement tools for excellent Higher Education. The status of an excellent Higher Education has not been an effective promotion for Higher Educations. Besides, it has not the indicators whether the excellent Higher Education or poor Higher Education. It is reflected by the cluster excellent Higher Education, fair Higher Education and poor Higher Education based on information systems. The purpose of this research was to build a model of Measurement Information System for Higher Education. Creating the status of an excellent Higher Education becomes a reference for investors in education; it guarantees sustainable service (sustainability). This research method was to explore several universities in Indonesia. This research technique selected 6 islands and 24 private Higher Education. The considerations were the best private universities in Indonesia. The method of this study designed an excellent Higher Education development model by compiling an institution business process model. It was realized by an academically. Furthermore, it was integrated by quality assurance system; validating instruments to several similar universities that had implemented a quality assurance system and the existence of a quality control group. The results of the research were the *SI-PETIS* model, and Implement the excellent Higher Education on Information System (*SI-PETIS*); issued the copyrights from the results of research and formulate the policy in a relevant environment, namely healthy Higher Educations. Moreover, this study built the *SI-PETIS* model.

1. Introduction

Higher Education must be good and strong because universities are a part of efforts to accelerate the quality of human resources. So, Higher Education governance becomes the main thing that cannot be ignored. The strategic concept towards a healthy and competitive university is strongly supported by *Tridarma* of Higher Educations and supported by IT systems, [1]. Human Resources Development [2,3,4], Research and development of entrepreneurial culture [5,6,7]. [8] The quality of Higher Education can be reflected in the quality of Higher Education. Quality Higher Educations are excellent Higher Educations (Halim A: 2014). [9] Quality assurance is the demand of the community as a customer because the customer is the main component that must be considered [10]. In fact, the Director-General of Institution of *KEMENRISTEKDIKTI*, Patdono Suwignjo said that the Gross Enrollment Rate (GER) in Indonesia is only 31.5 per cent with the number of Higher Education 4,529.



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It passed behind from Malaysia-GER is 38 per cent and Singapore-GER is 78 per cent. One of the causes of the low GER, although the number of the large Higher Education is 70 per cent of Indonesian Higher Educations. They are in fourth cluster namely universities are not "good". [6] The concept of the model on the quality of Higher Educations standards, the model of human resource empowerment and changes in quality-based Higher Education management, the main factors of quality management and quality policy indicators [11.12]. Development of Higher Education quality requires quality assurance [6]. The government as the sole holder of oversight responsibility for education (including tertiary education), both of them are organized by the government (state university) and the community (a private university) (UU Sisdiknas No.2 1989), it must provide for Higher Education because it is the right of citizens guaranteed by law. The society also has the right to participate in planning, implementing, monitoring and evaluating educational programs (Laws, No.8).

2. Literature Review

Higher Education Quality, [8] the quality of Higher Education can be reflected in the quality of Higher Educations and qualified Higher Educations are good management on colleges (Halim A: 2014). [5] state that Quality assurance is the demand of the community as a customer because the customer is the main component that must be considered (Sanusi: 2015. Sonhadji: 1999, Mantja: 1999). [3] In line with the above, universities need to make changes and reforms, both in the direction and objectives of Higher Education are concerning the quality and quantity, so that universities can compete (Gamar et al:2016). [4] The concept of the Higher Education on quality standards, the model of human resource management and changes in quality-based Higher Education management, the main factors of quality management and quality policy indicators [4,7] Development of Higher Education quality requires quality assurance of Higher Education (Srikanthan, Gitachari dan Dalrymple, John F: 2007). The quality of a Higher Education is the level of conformity between providers of Higher Education and standards of Higher Education applied in Higher Educations.

2.1. Continuous Improvement of Higher Education

Good management of Higher Educations has clear continuous improvement every year. There is significant progress in every *Tridarma* of the institution. So, the Continuous Improvement Process is needed. *Continuous Improvement Process* can be conducted by doing *Plan-Do-Check-Act* (PDCA). Clustering the Higher Education; in 2017, Higher Education performance measured by four main components, namely: a) HR Quality; b) Institutional quality; c) quality of student activity and d) quality of research and publication. There are three new indicators. It is added in the clustering method, namely community service, the number of internationally accredited study programs and the number of students. First, the Indicators on the quality of HR are relatively fixed as used in the previous year, which includes i) the percentage of lecturers with S3 degrees; ii) the percentage of lecturers in the position of associate professor and professor; iii) ratio of the number of lecturers to the number of students. Second, institutional quality indicators which were only reflected in the previous year indicators i) Institutional Accreditation and ii) Study Program Accreditation. In 2017, this institutional quality indicator was added with indicators i) the number of study programs that have International Accreditation / Certification, and ii) the number of foreign students. Third, the Indicators that reflect Student Quality change, namely student achievement.

2.2. Excellent Higher Educational on Information System (SI-PETIS)

The excellent Higher Education on information system was built in three stages: Conducting a survey of the current state of universities; Building a Model of the excellent Higher Education on Information System; and Implementation (SI-PETIS). The University of Manchester is used as an illustrative example of a large Higher Education. First, background analysis and semi-structured interviews were carried out to determine the scope of the university's current sustainability policies and the ability of the management systems to respond to circular economy challenges. This was followed by stakeholder workshops to identify gaps and opportunities for creating a business case for the implementation of a

circular economy. Finally, a critical assessment of the outcomes was carried out to identify further research needs for the implementation of a circular economy in Higher Educations. Although focused on the Higher Educations' sector, the proposed action-led approach can be used by any organization in the service sector looking to build more circular and sustainable business models.

According to [8] the problem of "lack of competence in managing Higher Education" from the inability to build relationships with business and to build strategic management and leadership. They found that the economic aspects of the digital economy are the current trend and it influences on equality in the Higher Education system in Russia. In this study, it was stated that research can determine the phenomena such as the gap between economic systems and their nature and the role and influence of digital systems.

Lobo et.al: Higher Education must develop a design or priority capability plan in producing graduates after balancing all aspects of social, environmental and experience that will ultimately create social awareness and moral responsibility. Furthermore [9] mentioned that role or influence of organizational climate by leadership and trust in the knowledge sharing academic system within the Higher Education. From 257 surveys showed that organizational climate has a very big influence on the characteristics of the application of knowledge sharing in the Higher Education. Gaus, N: Determination of the issue of the role of government in state institution under the New Public Management backed up by neoliberal ideology. This will increase the success and productivity of Higher Education. This study analyzed the relationship between the government and the Higher Education in Indonesia.

3. Reseach Methods

The method used the research and the model design for developing the quality of excellent Higher Educations in Indonesia; exploration, researchers conducted explorations at several universities in Indonesia. The selected Higher Education in 6 Islands and 24 private institutions was the best private Higher Education in Indonesia; by identifying the needs of private Higher Educations where the object of research applies the information system-based on private institutions; mapping the results of the exploration of semi-structured interviews to find the user needs of developing the Higher Education; ascertain whether the university's business processes had/had not implemented an optimally integrated quality assurance system; and validation to several similar universities that had implemented a quality assurance system and the existence of a quality control group with the in-depth interview method. This validation aimed at providing a confirmation of the quality development model on private Higher Educations. In-depth interview conducted several public and private institution [12]; through this research and the design method, private Higher Educations determined the quality standard criteria both process standards, content and standards of the Higher Education to support the competitiveness of Higher Educations in Indonesia.

3.1. Data Collection Techniques

Collecting data techniques in this study were conducted by collecting data and informational techniques, namely; (1) Documentation Studies, (2) Interviews, (3) Observations, and (4) Triangulation. The data collection techniques were presented in the figure below.

3.2. Data Analysis Technique

Data Analysis Techniques were interactive models. They were described in a series, namely; (1) Data Reduction, (2) Displaying Data, and (3) Drawing Conclusions and Verification. [10] Stage The method of this study used the method (1) Qualitative with a descriptive approach, namely; examining the phenomenon of implementation practices in Higher Educations through interviews with rector or head of private Higher Educations in Indonesia, students and alumni and stockholders; and (2) Inductive approach, which is the process of observing a particular phenomenon and based on that it comes to a conclusion (Sekaran, 2006). The inductive approach will identify the relationship between concepts and produce a general conclusion, [10].

3.3. Research Stages

[9] the research stages of data collection in the field, according to [14], were divided into three stages, namely; the Pre-Field Stage, the Fieldwork Stage and the Data Analysis Stage: (1) Pre-Field, it started with making a preliminary research design, and this was important to be done as a completeness to take care of the research permit in addition to other permits needed on the intended subject; (2) On-Field, the researcher decided to use an open setting or as a known researcher. It has given the data collection using multiple sources of evidence. The study duration to the report was estimated to be a maximum of 6 months when the research proposal was approved; (3) Data Analysis, the method used at this stage starts from the findings through the data collected and analyzed and made conclusions and implications of the findings [4]

4. Result and Discussion

Variables and dimensions of an excellent Higher Education were found after the exploration in the department of technology and information systems for information communication and technology (ICT). ICT, Semi-Structured Interview conducted with informants (institution managements, faculties, lecturers and staffs in selected Higher Educations as a sample starting from selected Higher Educations in 6 Islands and 24 private institutions was represented by Higher Educations as research subjects of Universitas Saburai Bandar Lampung, Universitas Jendral Ahmad Yani Bandung, Universitas Sebelas Maret Surakarta, dan Universitas Pattimura Ambon Maluku. The exploration of Semi-Structured Interview showed that the needs of stakeholders, especially users, were emphasized by this research to build a model of excellent Higher Education on Information System (*SIMPIS*); finding the condition the excellent Higher Education status to become a reference for investors in education to invest; guaranteeing sustainable services (sustainability).

The findings presented the exploration. It was obtained by the factual data on the report from the study "How to build the *SI-PETIS* model". It implemented on the Good Higher Education on Information System (*SI-PETIS*); issued the copyrights from the results of research and formulate policy in the relevant environment, namely; excellent Higher Educations. The exploration of the conditions and needs of an excellent Higher Education by surveying 200 respondents and 10 informants. It was processing data using SEM with Amos and Nvivo 12. Building the *SI-PETIS* model; implementing an excellent Higher Education on Information System (*SI-PETIS*), and trials on the orientation of research on science and technology products were established by strategic variables. It divided into Excellent Higher Education, Fair Higher Education, and Poor Higher Education.

According to Lobo et.al: Higher Education must develop a design or priority capability plan in producing graduates after balancing all aspects of social, environmental and experience. It will create social awareness and moral responsibility. Furthermore, Al Kurdi et.al: Their research measures the role or influence of organizational climate by leadership and trust in the knowledge sharing academic system in Higher Educations. It showed that the organizational climate has a very large influence on the characteristics of the application of knowledge sharing in Higher Educations. Based on the exploration conducted and empirical data, there were several applications. They had been implemented in private Higher Educations, but database applications are still fragmented. Enterprise Resource Planning (ERP) was a computer-based system that enables management to dispose of the resources they have (McLeod and Schell, 2007). This concept was developing. Many organizations are using this concept, including the field of a Higher Education in business processes. In other words, the database of each application had not been optimally integrated. Moreover, an excellent Higher Education on Information System model was proposed (Figure 1).

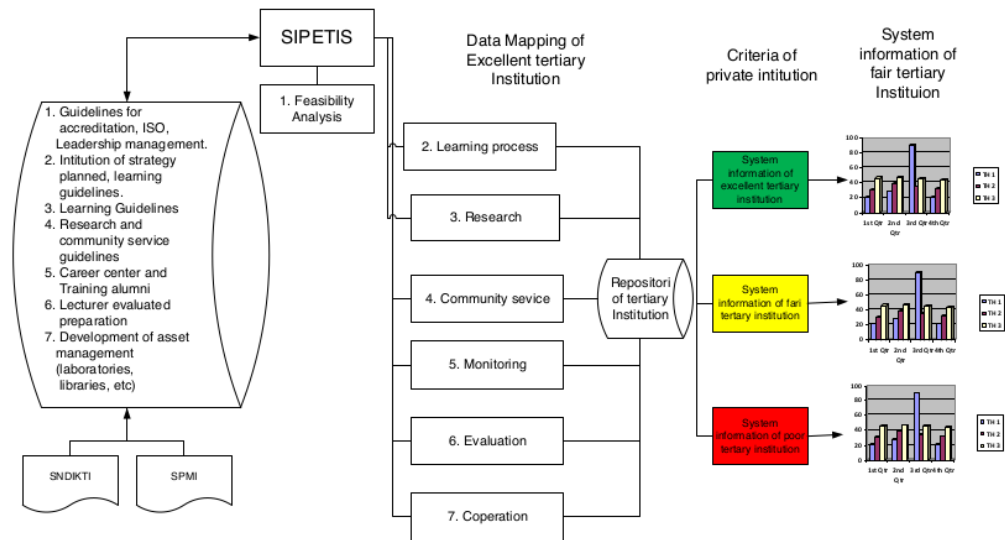


Figure 1. The excellent Higher Education on Information System model

1. The pedestals of becoming the guideline for improving the excellent Higher Education, namely:
 - SNDIKTI
 - Internal Quality Assurance
2. *SIPETIS* is an interface for the data mapping information on the excellent Higher Education (feasibility analysis)
3. The Higher Education Variable is stored in the Higher Education repository which is the weighting information :
 - a. Excellent Higher Education
 - b. Fair Higher Education
 - c. Poor Higher Education
 It was shown by a diagram or cluster form.

5. Conclusion

The model development and application of an excellent Higher Education already occurred. In contrast, the results of exploration and theoretical studies showed that it was not on Enterprise Resource Planning (ERP). Data Integration has not been accommodated properly, so this research focused on designing e-*IPETIS* applications. It integrated with the data computer-based. The prototype model was designed for excellent Higher Educations. It began with the Design of Data Flow Diagrams (DFD) as the basis for making prototypes of virtual e-*IPETIS* applications, specifically the Eligibility Administration Dashboard, Learning, Monitoring and Evaluation and Cooperation, Human Resources (HR), Institutional (Student Activities), Research and Community Service, Scientific Publications, Organizational Aspects and Innovation Aspects.

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