

Formulating A Higher Education Competitiveness Model

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Formulating A Higher Education Competitiveness Model

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ABSTRACT

Factors that cause changes in the world of higher education in the 21st century are a shift in the role of higher education due to globalization influence, scarcity of resources to respond to changes appropriately, development of science and technology that accelerates very quickly, and development of entrepreneurial culture. According to the role of the tertiary institution, it is considered necessary to develop a world-class model for improving the quality of higher education whose development is reflected in the vision of a university. It can be done by implementing strategies to win superior universities based on e-governance through research activities, and formulating entrepreneurship and university information technology. This study aims to formulate a model of higher education product/service and standards for the main aspects of RAISE ++ -based Higher Education (process, content, and resources). The results indicated that the information technology model was an effective model to improve the relationship between internal management & organization variables and efficiency & productivities in a sustainable manner. An incorporated data framework was a high sub-variable to shape the quality of ICT, and the budget portion was a solid sub-variable to frame internal management. Besides, physical asset optimization prevalently shaped efficiency and productivity, and innovations to be specific sub-variable which was moderately solid in framing the University Competitive Sustainability, and therefore, these sub-factors were the most noteworthy.

Keywords: Higher education competitiveness, Information Technology, Internal management, Efficiency, Productivity

JEL Classifications: I23, I28, M19

1. INTRODUCTION

Higher education has a very strategic role in the midst of society. It is often formulated into Tridharma Perguruan Tinggi (Three Pillars of Higher Education comprising Education, Research and Community Service. Unfortunately, Indonesia's competitiveness level was in the 91st position based on the factors of the technological development level (Moeliodihardjo et al., 2013). Conceptually, ecosystem development in industrial innovation consists of various elements such as the providers of HR, capital, knowledge, and technology, and also the policymakers. Continuous interaction between these parties will produce quality researchers and R & D products. Furthermore, according to the role of the tertiary institution, it is considered necessary to develop a world-class model for improving the quality of higher education whose development is reflected in the vision of a university.

However, the problem is that is the higher education system in Indonesia ready to deal with these changes? Some of the important and fundamental problems faced are that its implementation still faces a number of obstacles in terms of policy, implementation, supervision, and evaluation. They are related to the problems of access, quality, budget and financing, relevance, higher education governance, and others. In addition, the problem of the quality and relevance of higher education is considered to have not provided an optimal contribution to the industry and society. Further, higher education has not been able to optimally become an important factor that is able to produce a large number of entrepreneurs with job creation and independence orientation. A large number of educated unemployment, a small number of scientific studies and publications and service programs that are still considered less responsive and contribute to community empowerment and development. Therefore, the research question is that how to formulate a higher education based on the implementation of e-governance systems through research activities, to formulate entrepreneurship and information technology, to design standard models, to realize higher education products/services such as curricular, research, community, administrative, and extracurricular services, and to realize change management to answer the challenges of the globalization era, focusing on the main aspects of governance through "RAISE ++ based processes, content, and resources". Luknanto (2018) in his article entitled "World of Education" stated that RAISE consists of relevance (according to market needs), academic atmosphere (learning process), internal management (curriculum and research), sustainability (guaranteed quality), and efficiency and productivity (students searches). The purpose of this study was to identify indicators of the quality of information technology in higher education. This study used the Integrated Performance Measurement System (IPMS) model and RAISE ++ criteria for approval of KPIs at Private Higher Education (Perguruan Tinggi Swasta (PTS)) in Indonesia.

By drawing on a resource-based view of the institution and the expansion of its dynamic capabilities, the research identified several recipe paths for complex causation that could lead to certain organizational abilities, competitive advantage, and performance. This present study provides key conclusions and profound implications for institution managers and researchers.

2. LITERATURE REVIEW

Altbach and Knight (2016) states that the paradigm of change is a shift in the role of universities where there are factors that cause change: a shift in the role of higher education due to the globalization influence, scarcity of resources to respond to changes appropriately, the development of science and technology which accelerates very quickly, and the development of an entrepreneurial culture. Whereas according to Deming (1982), the key to the quality definition is customer-oriented, so that meeting customer expectations can be achieved in many ways and remain controlled. While Sallis (2006) used the concept of quality as something absolute and relative at once.

Lynch and Baines (2004) studied whether or not higher education possess sustainable competitive advantages and concluded that they did, particularly knowledge-based, reputational, innovative and architectural related advantages. They showed that competitive resources deliver the objectives of HEI in that they enhanced the competitive advantage of these institutions and increasingly competitive markets. However, this depends on some extents on the higher education objectives. The other study has been done by Taucean et al. (2018). Taucean et al. (2018) examined entrepreneurial higher educations. They discussed the different possible approaches to entrepreneurship, the reasons, relevance, and importance of entrepreneurial higher educations, which were the entrepreneurship components and what are the mission, objectives, strategies needed to become an entrepreneurial higher education. A case study of the higher university was needed and considered, by using the analysis of

survey results. A proposal for a roadmap was also presented, illustrating the way to be an entrepreneurial higher education.

Allen and Wilson (1995) examined a study to illuminate issues developed in HEALS and the extent to which this could inform the present information strategy formulation process. According to Bazeley (2010), in a setting of expanding accentuation on scholarly execution and responsibility, information from an organized review in which scholastics expounded on eight unique properties of high-performing analysts were utilized to fabricate a calculated model of research execution. Research execution supposedly comprised two essential parts, with six optional dimension measurements and scope of potential pointers. Four basic (important and adequate) measurements, identifying with the exploration movement segment of research execution, were a commitment, task direction, looks into training and scholarly procedures. While research conducted by Azma (2011) stated that development theory emphasized that development requires science and technology first so that no country might succeed without being registered as a pioneer in using technology.

3. METHOD

The sampling method used was a non-random sampling method with a purposive sampling technique. The research sample is lecturer from several universities that considered as medium-size universities. They were located in Lampung, Jakarta, Semarang, Medan, Bengkulu, East Nusa Tenggara, East Java, and Yogyakarta. The method of data collection in this study is a questionnaire method with field studies or field surveys. This method uses a number of questions or statements made in a closed manner with the choice of answers that have been provided, namely 1 to 10 and open questions, where the respondent can answer according to the opinion of the respondents themselves. Questionnaire distribution method using a self-administered method, namely by direct distribution of questionnaires to respondents and online questionnaire methods, namely using internet media.

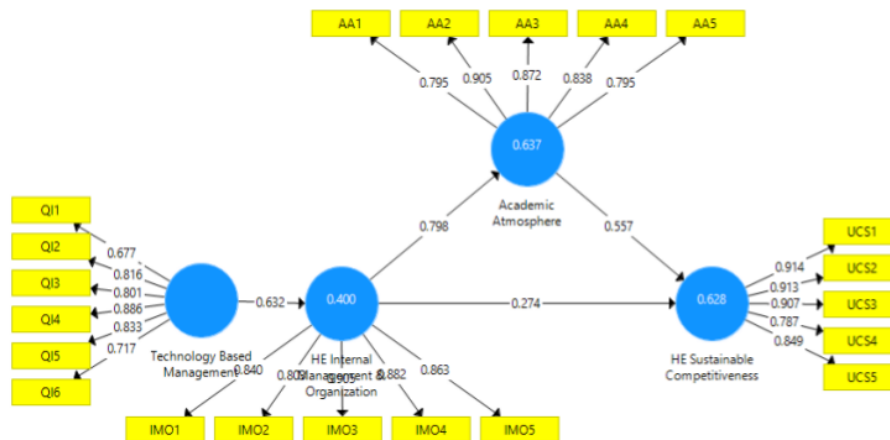
The data was analyzed using Structural Equation Modeling (SEM) with the PLS model. There were 67 out of 104 data obtained that could be used. 35 statements found were grouped into 6 groups: internal management, efficacy and productivity, academic atmosphere, entrepreneurial oriented university, research capabilities, and university competitive sustainability.

4. RESULTS AND DISCUSSION

Based on the SEM analysis, this study calculates the path diagram as shown in Figure 1. In detail, Figure 1. show a model of information technology relationship with internal management and organization (first model).

Figure 1.

Path Diagram - A Model of Information Technology Relationship with RAISE ++ based Internal Management and Organization



Source: Author's calculation

Figure 1. shows that information technology has a contribution to internal management and organization (0.632), internal management and organization has a contribution to the academic atmosphere (0.798), and academic atmosphere has a contribution to University Competitive Sustainability (0.557). While the internal management and organization have a contribution to the University Competitive Sustainability as much as 0.274. The variable relationship factors can be seen in Table 1. below.

Table 1.

Factors Related to Information Technology Variables with Internal Management and Organization

Variable	Coefficient Value
Information Technology	0.632
Internal Management and Organization	0.798
Academic Atmosphere	0.557
University Competitive Sustainability	0.274

Source: Author's calculation

The coefficient value of information technology is 0.632, academic atmosphere is 0.557, internal management and organization are 0.798, and the University Competitive Sustainability is 0.274. The coefficient value of the variables in the first model is presented in Table 2.

Table 2.

Coefficient Value of Variables in The Second Model

Variable	Coefficient Value
Internal Management and Organization	0.400

Academic Atmosphere	0.637
University Competitive Sustainability	0.628

Source: Author's calculation

Each variable has a sub-variable and coefficient value. The information technology variable with the strongest sub-variable is the integrated information system with a coefficient value of 0.886, the internal management variable with the strongest sub-variable is the budget allocation with a coefficient value of 0.905, the academic atmosphere variable with the strongest sub-variable is quality of educational processes with a coefficient value of 0.905, and the University Competitive Sustainability variable with the strongest sub-variable is innovation with a coefficient value of 0.914. The value of each sub-variable can be seen in Table 3.

The highest variable in the second model is the academic atmosphere (0.637). While the strongest sub-variables are the integrated information system (0.886), the budget allocation (0.905), the quality of educational processes (0.905), and the innovations (0.914).

Table 3.

Coefficient Value of Sub-variables in The First Model

Variable	Sub-variable	Value
Quality of ICT	Computerized & internal based facilities	0.677
	Implementation of e-learning	0.816
	Paperless bureaucracy	0.801
	Integrated information system	0.886
	The excellence of digital libraries	0.833
	High-speed internet	0.717
Internal Management	Staff performance	0.804
	Planning system	0.809
	Budget allocation	0.905
	Operating procedure excellence	0.882
	Transparent management system	0.863
Academic Atmosphere	Academic society relationship	0.795
	The quality of educational processes	0.905
	Transparency & accountability in academic life	0.872
	Motivation to work in all academic activities	0.838
	Community involvement in academic & teaching-learning	0.795

University Competitive Sustainability	Innovation	0.914
	Network	0.913
	Reputation	0.907
	Relevance	0.787
	Commercialization	0.849

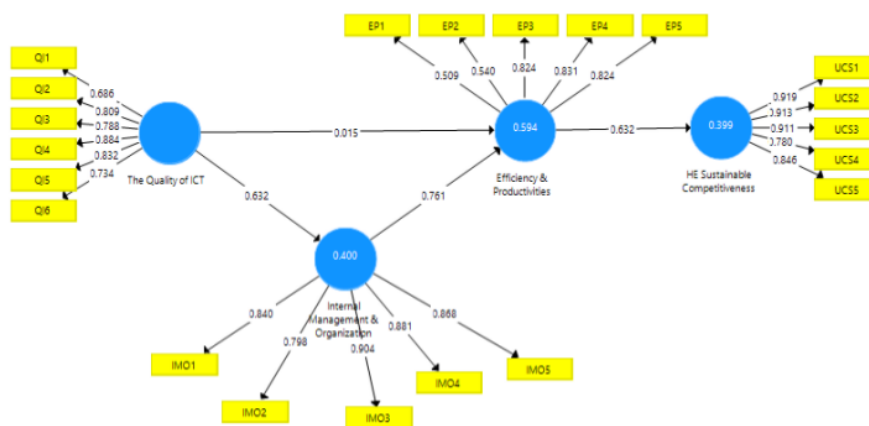
Source: Author's calculation

The first model concludes that information technology has a contribution to the internal management and organization and internal management and organization has a large contribution to the academic atmosphere to produce University Competitive Sustainability. While information technology has a contribution of 0.632 to Internal management and organization. The relationship between variables concludes that information technology has a contribution to the internal management and organization so that it has a contribution to the academic atmosphere. While the relationship between information technology to internal management and efficiency and productivity in higher education (second model) can be seen in Figure 2.

Figure 2. shows that information technology has a contribution to internal management and organization (0.632), internal management and organization to efficiency and productivity (0.761), and efficiency and productivity to University Competitive Sustainability (0.632). While the relationship of information technology to efficiency and productivity has a value of 0.015, efficiency and productivity to University Competitive Sustainability have a coefficient value of 0.632. The factors related to the variables can be seen in Table 4.

Figure 2.

Path Diagram - A Model of Information Technology Relationship with Internal Management and Organization and RAISE ++ -based Efficiency and Productivity



Source: Author's calculation

Table 4.

Factors related to Information Technology Variables with Internal Management and Organization and Efficiency and Productivities

Criteria	Score
Technology-Based Management – Internal Management and Organization	0.632
Internal Management and Organization - Efficiency and Productivity	0.761
Efficiency and Productivity -University Competitive Sustainability (UCS)	0.399
Technology-Based Management – Efficiency and Productivity	0.015

Source: Author's calculation

The internal management and organization variable has a coefficient value of 0.400, the efficiency and productivity variable has a coefficient value of 0.594, and the University Competitive Sustainability variable has a coefficient value of 0.399. The value of each variable in the third model can be seen in Table 5.

Table 5.

Coefficient Value of Each Variable in The Third Model

Variable	Coefficient Value
Management and Organization	0.400
Efficiency and Productivity	0.594
University Competitive Sustainability	0.399

Source: Author's calculation

The information technology variable with the strongest sub-variable is the integrated information system with a coefficient value of 0.884, the internal management variable with the strongest sub-variable is budget allocation with a coefficient value of 0.904, efficiency and productivity variable with the strongest sub-variable is physical asset optimization with a coefficient value of 0.831, and University Competitive Sustainability variable with the strongest sub-variable is innovation with a coefficient value of 0.919. The value of sub-variables in the second model can be seen in Table 6.

Table 6.

Coefficient Value of Sub-variables in The Second Model

Variable	Sub-variable	Coefficient Value
Quality of ICT	Computerized & internal based facilities	0.686

	Implementation of e-learning	0.809
	Paperless bureaucracy	0.788
	Integrated information system	0.884
	The excellence of digital libraries	0.832
	High-speed internet	0.734
Internal Management	Staff performance	0.840
	Planning system	0.798
	Budget allocation	0.904
	Operating procedures excellence	0.881
	Transparent management system	0.868
Efficiency & Productivity	Timely study periods	0.509
	Reduced number of drop out	0.540
	HR optimization	0.824
	Physical asset optimization	0.831
	5. Unit cost efficiency	0.824
University Competitive Sustainability	Innovation	0.919
	Network	0.913
	Reputation	0.911
	Relevance	0.780
	Commercialization	0.846

Source: Author's calculation

The second model presents the highest variable is efficiency and productivity with a coefficient value of 0.594. While the most powerful sub-variable is the integrated information system with a coefficient value of 0.884, budget allocation with a coefficient value of 0.904, physical asset optimization with a coefficient value of 0.831, and innovation with a coefficient value of 0.919. The second model concludes that information technology has more contributions to internal management rather than to efficiency and productivity. While internal management has a major contribution to efficiency and productivity to produce University Competitive Sustainability. The relationship between variables concludes that information technology contributes to internal management, internal management contributes to efficiency and productivity, efficiency and productivity has a contribution to University Competitive Sustainability.

5. CONCLUSION

This study concludes that there was a strong relationship between information technology with internal management and organization in forming a highly competitive university model. While the relationship between information technology to internal management and efficiency and productivity to support a competitive model of higher education was also found in this study. In addition, the integrated information system was such a high sub-variable to form the quality of ICT, and the budget allocation was a strong sub-variable to form internal management. Furthermore, physical asset optimization predominantly shaped efficiency and productivity, innovation, which were relatively strong in forming University Competitive Sustainability, and that was because these sub-variables had the highest value.

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