

**MODEL OF IT IMPLEMENTATION
READINESS IN HIGHER EDUCATION
INSTITUTION IN INDONESIA**

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ASIA e UNIVERSITY

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A Thesis Submitted to Asia e University in
Fulfillment of the Requirements for the
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ABSTRACT

The Information Technology or widely known abbreviated as IT takes the crucial part in the Higher Education Institution in which expectedly increase administration tasks efficiency. Hereby setting-up an automatic system for covering every process such as information management, or to expand the management effectiveness by providing adequate information for further able to either taking decisions or positively elevate the organisation proficiency in a competitive way of running bussiness in a brand new style. The Higher Education Institution is more challenging and inevitably exceeds great number of complex demand nowadays, not only to organize the academic activity process or community service programme but also it designed to look forward to put more higher effort in innovation regarding information and data management that has to be well-described to the stakeholders. to fulfill the globalization recent demand, Higher Education Institutions were competed each other establishing Information Technology installments, moreover as the result, number of instalments failure arose in approximately four late decade. Later on, one of the major causes in information system implementation failure is incompatibility of both recent system and bussiness process linked with information for the organization purposes. Furthermore, the other particular external factors caused failure were possibly human error and the process that impacted task management procedure. In addition, the capability of Information Technology implementation in Higher Education Institution theoretically still undoubtedly discrepancy along with some trouble-cases in the methodology. In sum up, this research intended as the scientific response regarding phenomenon as previously described, and this research also aimed to explore the availability of Information Technology implementation followed by brief explanation related to the factors that affected particularly from the internal

stakeholder influence. This research method develops some relevant models by elaborate and combines E-Readiness together with ZEN Framework. Methodologically, mixed sequential approach primarily applied in each research phase and pointed out quantitative method at first place. The population from this research is the internal stakeholders which samples are selected based on multi-stage purpose random sampling. Further as the results, about 338 valid responses were analysed using quantitative method coexistence with Partial Least Squares Structural Equation Modelling or PLS-SEM and the thematic paper of Focus Group Discussion (FGD) consisting 18 participants which its result then analysed in qualitative mechanism. The conclusion from those two methodologies then interpreted by implementing the confirmed interpretation. For further, the main hypotheses delineate from the research conclude that 2 from 15 examination procedures were rejected. On the other hand, practical finding from this research contributes in the exploration process that evaluates the capability to produce ability to compare and to make such a predictive model framework instalment in Higher Education Institution.

APPROVAL

I certify that I have supervised / read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, as a thesis for the fulfillment of the requirements for the degree of Doctor of Philosophy.



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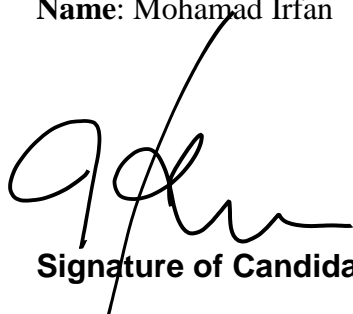
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DECLARATION

I hereby declare that the thesis submitted in fulfillment of the Ph.D. degree is my work and that all contributions from any other persons or sources are properly and duly cited.

I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the program and/or exclusion from the award of the degree.

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LIST OF ABBREVIATIONS

APITOM	Asosisasi Perguruan Tinggi Ilmu Komputer
ASEAN	Association of Southeast Asian Nations
AVE	Average Variance Extracted
BSNP	National Education Standards Agency
CA	Cronbach's Alpha
CL	Cross Loading
CR	Composite Reliability
CSF	Critical Success Factors
DGHE	Directorate General of Higher Education
DGHE	Directorate General of Higher Education
FGD	Focus Group Discussion
HE	Higher Education
HEI	Higher Education Institution
HIPO	Hierarchy Input Process Output
ICT	Information & Communication Technology
ICT	Information Communication Technology
INC	Institutional Context
IPO	Input-Process-Output
IS	Information System
ISSP	Information System Strategic Planning
IT	Information Technology
ITC	IT Content
ITIR	IT Implementation Readiness

MCIT	Ministry of Communication and Information Technology
MNE	Ministry of National Education
MRTHE	Ministry of Research, Technology, and Higher Education
MRTHE	Ministry of Research, Technology, and Higher Education
NABHE	National Accreditation Body for Higher Education
PCS	Process
PhD	Philosophy Doctor
PLS-SEM	Partial Least Square-Sequential Equation Modelling
PPL	People
SLA	Service Level Agreement
SOP	Standard Operating Procedure
SPSS	Statistical Package for Social Science
SVQ	Service Quality
SWOT	Strength Weakness Opportunity and Threat
TAM	Technology Acceptance Model
TCH	Technology
TeSCA	Telkom Smart Campus Award
UNESCO	United Nations Educational, Scientific and Cultural Organization

CHAPTER 1.0 INTRODUCTION

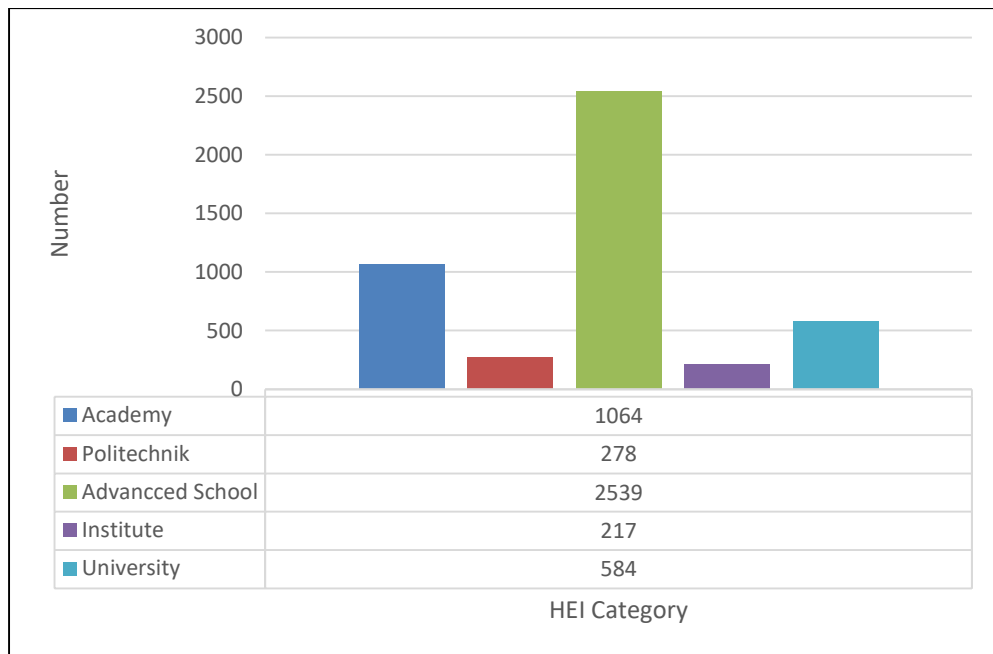
1.1 Background of the Study

Information Technology (IT) is a crucial component of the Higher Education Institution (HEI) for learning, research, and the quality of community development, *Tridharma Perguruan Tinggi* (Three Pillars of Higher Education Institution). Also, IT has a role to play in operational and administration, assisting the decision-making process, supporting communication and interaction among stakeholders, enabling optimization of processes and resources, and establishing a strategic partnership with external parties (Curry, Curry, & Ferguson, 2000; Kearns & Sabherwal, 2006; Kurniawan & Suhardi, 2013; Michael Okumu Ujunju G. Wanyembi, 2012; T Semiawan & Middleton, 1999). The vision and goals of the HEI in developing countries are to grow and have a competitive advantage (Wongwuttawat, 2016). The role of IT to achieve the vision and goals of the organization is very significant in universities in developing countries, which have not run well due to high costs, uneven IT awareness, and use of IT is limited only to support organizations, thus impacting to the institution progress (Peña-Mora & Tanaka, 2002).

Indonesia as a developing country and an archipelago which has more than 13 thousand islands, more than 240 million (BPS, 2013), and around two million square kilometers, indirectly affects the world of education characteristics. (Zahrotunisa & Wicaksono, 2017) concluded that after more than a decade of reformation era in the early 2000s, higher education institutions in this country "are still looking for format and best practices to face the challenging future." Formally, the provision of higher education institutions is now managed by the Ministry of Research, Technology, and Higher Education through the Directorate General of Higher Education. Figure 1.1

shows the number of Higher Education Institutions in Indonesia, just as shown in the Higher Education Institution database. Figure 1.1 shows the number of higher education institutions in Indonesia 4682, consisting of the academy, polytechnics, advanced schools, institute, and university with around seven million students.

Figure 1.1 Number of HEIs in Indonesia



According to the Ministry of Research, Technology, and Higher Education Regulation No. 12 of 2012 concerning Higher Education Institution (Undang-undang Republik Indonesia, 2012), The functions of the college are :

- 1) Develop the ability and form the character and civilization of a dignified nation to educate the life of the country;
- 2) Developing an innovative, responsive, creative, skilled, competitive, and cooperative academic community through the application of *Tridharma* (Three Pillars of Higher Education); and
- 3) Develop Science and Technology by considering and applying Humanities values.

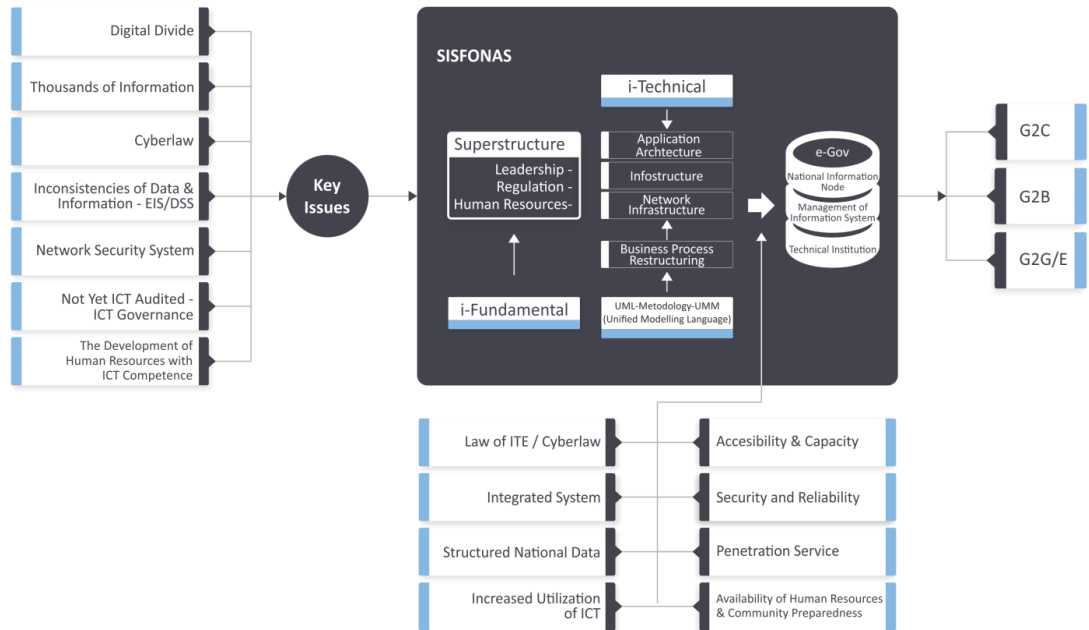
While the purpose of higher education institution according to the Ministry of Research, Technology, and Higher Education Regulation No. 12 of 2012 concerning higher education institutions (Undang-undang Republik Indonesia, 2012) are:

- 1) Developing the Students potential to become human beings who are loyal and obedient to Allah SWT and have people who are noble, healthy, knowledgeable, capable, creative, independent, skilled, competent, cultured for the benefit of the nation;
- 2) Produce graduates who master the branches of Science and/or Technology to meet national interest and improve national competitiveness;
- 3) The production of Science and Technology through research that pays attention to and implements the value of humanities to benefit the progress of the nation, as well as the development of civilization and welfare of humanity; and
- 4) The realization of Community-Bases Dedication and Dedication that beneficial in promoting the general welfare and intellectual life of the nation.

One of the indicators for assessing the quality of higher education is the information system, contained in ministerial regulation regarding quality education standard (BAN-, 2017) Higher Education have specific Access and use of management system and information technology to support management and administration of the academic program, operational, and program development. An effective information management system can be used to support data collection, analysis, storage, retrieval, presentation of data and information, and communication with stakeholders.

Figure 1.2 IT Framework for Education

**Design of National Information
(Conceptual Framework)**



Based on the mandate of national regulations university quality assurance, the achievement of Three Pillars of Higher Education must meet all the standards that must be done, of the criteria in Information Technology (IT). IT must be made relevant and have a significant impact on the achievement of Three Pillar of Higher Education. Therefore the Ministry of Research, Technology, and Higher Education made an IT development blueprint for education (see figure 1.2). This blueprint as a reference for Higher Education institutions on how to utilize the potential of IT and maximize the role of IT for the advancement of Higher Education institutions. The blueprint will be the basis for structuring, developing, implementing, serving, and utilizing IT in higher education institutions now and in the future. From the blueprint of information technology and communication service, it is expected that all of the information technology and communication activities in higher education institutions will be integrated, efficient, independent, and transparent, and accountable.

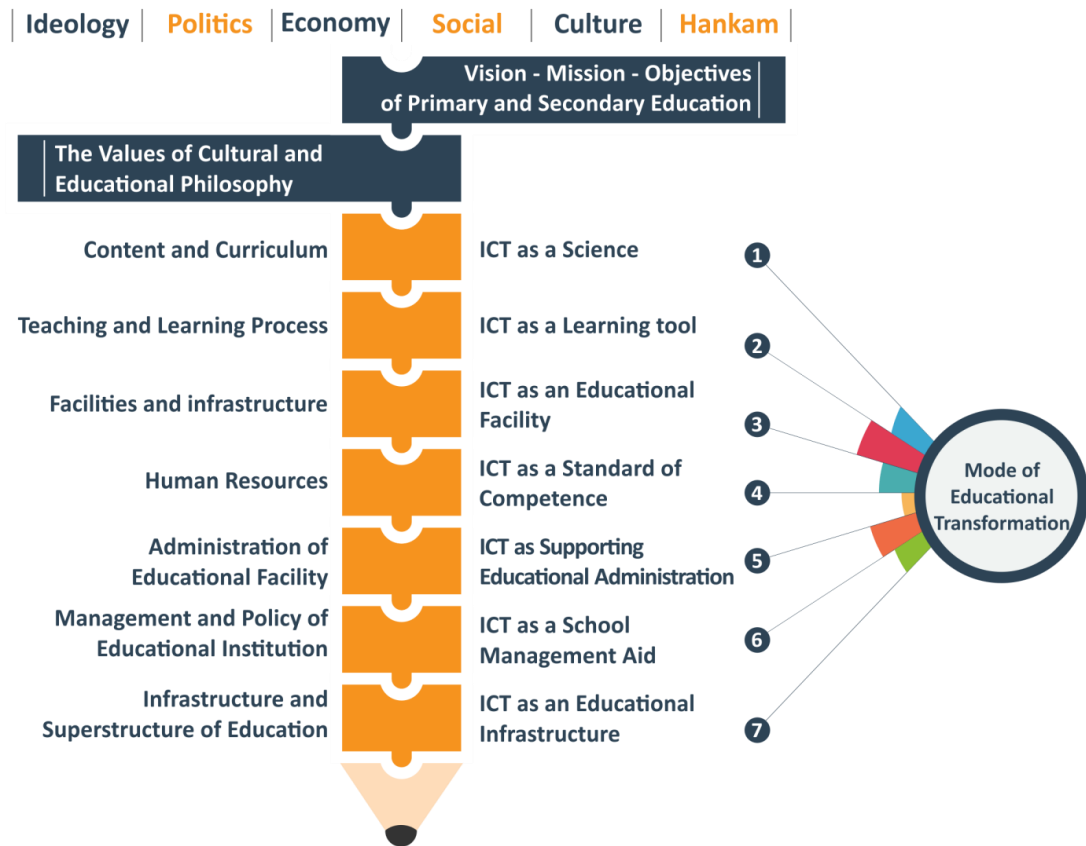
Based on the Directorate of Higher Education Institution (2013), the role of IT for higher education is as an integrator of higher education programs and activities to increase effectiveness, efficiency, and productivity. The role of an integrator is vital because the planning of HEI programs and activities are often not carried out in an integrated manner.

According to the Directorate of Higher Education Institution, the first role of IT is to be able to help facilitate more integrated planning, supporting policies that need to be explicitly explained in the IT strategic plan. The second role of IT is as a support for the improvement and perfecting the innovative academic and administration processes. The third role of IT is to expand Access for all campus stakeholders, expanding Access to information can be used to support learning activities that are more equitable, effective, and quality. Fourth role of IT is as a transformer, changing the order, culture, mechanism, and values in university management (Direktorat Perguruan Tinggi, 2013).

The role of ICT in modern Indonesian schools has an ideological, political, economic, social, cultural and defense impact (see figure 1.3). This is in accordance with the government's concept of the use of ICT in HEI.

Figure 1.3 The role of ICT in modern school

The Role of ICT in Indonesia Modern School



The fact is the application of IT in higher education institutions is not following the government's ideal concept, the value of failure reaches 18%, IT implementation problem is 55%, and successful IT implementation is 27% (Dwi Apriyanto, Rudi. and Prihantono Putro, 2018). IT implementation in higher education institutions has problems due to lack of management commitment and readiness for implementation, project implementation failure, delays in implementation time, IT project quality that does not meet expectations, and resistance during implementation (Dipaloka, 2013; Jefferis & Mansour, 2004). The result of studies on the use of readiness for IT implementation has a significant impact on the success of IT projects in higher education institutions (A. Subiyakto, Ahlan, Kartiwi, & Putra, 2016). IBM defines E-

Readiness as a quality measure of a country's information and communication technology (IT) and the ability of consumers, businesses, and governments to use IT (The Economist Intelligence Unit, 2009). Readiness also affects the success of educational programs that use information and communication technology in the educational process (Kiula, Waiganjo, & Kihoro, 2017). The definition of e-readiness is different from one researcher to another researcher. E-Readiness is a level in which the community is prepared to participate in a technology that can help build towards a better society (Jumeri, 2015). E-Readiness is the level at which people are ready to take advantage of information and communication technology (Yarahmadi & Magd, 2016). E-Readiness is essential for organizations that want to adopt business to business analysis and ensure productive and useful applications. This microlevel measurement tool is useful for determining the criteria for design, planning, implementation, and monitoring so that the result can actually be used as a component if consideration for designing community development programs, even HR development (Septikhtiarif & Soepomo, 2017).

In general, higher education institutions cannot implement IT with technical, conceptual, and methodological expectations. This is because IT is only a complement, not part of the strategy used by higher education institutions to achieve organization goals (Dipaloka, 2013; Iskandar, 2009; Marcel, 2016; “Ready for Indonesia ’ s digital future ?,” n.d.; Usuh, 2014). The following are obstacles to IT implementation that occur in higher education institutions:

- 1) The unavailability of references to develop IT in higher education institution result in gaps in practical, theoretical, and methodological (Departemen Pendidikan Nasional, 2005; Direktorat Perguruan Tinggi, 2013; Wijaya, 2015);

- 2) The utilization of IT is not in accordance with the vision and mission of higher education institution, so it does not support the business process of higher education institution (Firmansyah, 2104) this is caused by practical, theoretical, and methodological gaps.
- 3) Utilization of IT is not in line with the National Standards of Higher Education (Direktorat Jendral Pendidikan Tinggi dan BSNP, 2013);
- 4) Utilization of IT in Higher Education Institution is not maximized for higher educational quality so that higher education institution can compete at the local, national, and international levels (Direktorat Perguruan Tinggi, 2013);
- 5) Lack of alignment between strategy and organizational needs in IT development that provides additional value and direct or indirect benefits for the higher educational institution;
- 6) IT does not have a portfolio review and the performance of the latest IT application currently owned by the relevant higher education institution and the problems that cover them;
- 7) Higher education institution does not have a gap analysis of the needs and availability of IT that is determined (alignment of organizational strategies and needs as well as IT features and capabilities), in which in-depth discuss the problems that occur along with recommendations of proposed solutions;
- 8) The unavailability of IT system development programs within approximately 5 (five) years that have been given priority attribute based on the level of importance, availability of funds and resources, organizational achievement targets, and critical needs;

In short, researchers need to carry out theoretical and technical studies on the importance of making predictions of higher education institution readiness for