

**FACTORS INFLUENCING THE
EFFECTIVENESS OF INFORMATION
TECHNOLOGY GOVERNANCE AND
PERFORMANCE IN HIGHER OF EDUCATIONAL
INSTITUTIONS IN INDONESIA**

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**ASIA e UNIVERSITY
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TECHNOLOGY GOVERNANCE AND PERFORMANCE IN HIGHER OF
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ABSTRACT

Information Technology (IT) is a very important aspect for higher education institutions (HEI) in both teachings, research, and administration. The managers of those intuitions are more and more aware achieve the business goals set. Universities as business organizations use information technology as a tool to achieve organizational goals. Effective information technology (IT) governance is essential for a university to achieve the objectives of information technology performance in an organization. To implement information technology (IT) governance effectively, a set of IT governance mechanisms is needed to influence the effectiveness of information technology governance and the effectiveness of governance in improving IT performance. This research examines how the mechanisms of information technology governance (ITG) influence the performance of Information Technology (IT) and the effectiveness of IT Governance (ITG) as an intervening variable in Higher Education Institution (HEI). Quantitative research methods are used to analyze data. The structured questionnaire was distributed to respondents in all regions of Indonesia who understood the field of IT Governance in Higher universities whose reliability and validity were confirmed. Structural equation modeling (SEM) using Smart PLS software, version 3, is used to present data. SEM path analysis shows an estimate of the relationship of the main constructs in the data. The results obtained from this research show the positive relationship between structure and relational mechanism to the effectiveness of IT Governance, Relational mechanism also has a significant influence on IT Performance. It is also observed that the effectiveness of IT Governance has become a significant supporter of IT performance. The effectiveness of IT Governance needs to maintain and monitor also implementation to increase a positive IT performance. The Effectiveness of IT governance significantly acts as an Intervening variable for the

relationship between structure mechanism and IT Performance, but the process and relational do not affect intervening variables. Propose future this study Information Technology Governance (ITG) needs more detail especially focus on public universities or private universities. So the result will be compared to both cases of them or divided with the cluster for the level of accreditation.

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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DECLARATION

I hereby declare that the thesis submitted in fulfillment of the Ph.D. degree is own 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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A handwritten signature in black ink, appearing to read 'Anwar', with a stylized, sweeping flourish extending to the right.

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LIST OF ABBREVIATIONS

AeU	Asia e University
AVE	Average Variance Extracted
COBIT	Control Objectives for Information and Related Technologies
ICT	Information and Communication Technology
IS	Information System
IT	Information Technology
ITG	Information Technology Governance
PLS-SEM	Partial Least Square Structural Equation Modelling
SEM	Structural Equation Modelling
GUG	Good University Governance

CHAPTER 1

INTRODUCTION

This chapter begins with background research on the mechanism information technology governance (ITG), IT governance effectiveness, and IT performance. This chapter presents the formulation of the problem statement that generates research questions and research objectives. Scope of the study, the definition of important terms, and the organization of the thesis are also described in this chapter. This research examines how the mechanisms of information technology governance (ITG) influence the performance of Information Technology (IT) and the effectiveness of IT Governance (ITG) as an intervening variable in Higher Education Institution (HEI)

1.1 Background of the Study

Information technology has become a necessity as well as a requirement for organizations in running their business. In principle, information technology has become an enabler for organizations to achieve their goals. Therefore, the presence of IT becomes most important for the organization.

The use of information technology (IT) in most companies is no longer a rare item that is difficult to find. It cannot be denied that information technology (IT) has become a necessity as well as a requirement for organizations in running their business. IT is needed by an organization to help achieve its goals, but IT procurement requires a large investment. The IT investments that have been issued by the company need to be

optimally achievable. IT organizations are not sufficient to sit (manage) by the IT department alone but should be professionally managed (govern). The IT management specialist is known as “IT Governance”.

The changing role of information technology from an operating role to a strategic role, processing information technology agenda that is important for top-level executives so that decisions regarding information technology is in the hands of the board of directors or be the responsibility of the organization. IT Governance (ITG) is an integrated management aspect of the company's which includes leadership, structure, and organizational processes that ensure that company information technology can be used to maintain and expand organizational strategies and goals (ITGI, 2003).

Information technology governance is an integrated part of company management which includes leadership, organizational structure, and processes that ensure that company information technology can be used to maintain and expand organizational strategies and goals.

Achieving alignment between business and information technology (IT) strategies has long been a crucial issue for many organizations. There was much interest in strategic alignment in the early 1990s as IT became seen to be an integral component of organizations (Broadbent, 2002; Haag & Keen, 1996; Tiwana et al., 2013) notes that “IT has become an important aspect of everyday business.

First developed in 1993 as a derivative of corporate leadership, the discipline of information technology management largely focuses on the interaction between organizational strategic objectives, business goals, and organizational IT management.

The point is the importance of creating value in the use of information and related technology and sets out obligations of the regulator, head of the IT unit, or the management of the company.

Information technology governance is defined by the Information Technology Governance Institute (ITGI) in (IT Governance Institute, 2003) as Executive and Managing Board responsibility for consistent management, organizational structure, and processes to support for corporate information technology and also included in the strategy and goals of the organization. Then (Steven De Haes & Van Grembergen, 2009) explained that information technology governance is an organizational action taken by the board, executive management, and information technology management. Information technology governance plays a very important role so that information technology projects are in line with company strategy and goals.

The role of information technology governance is strategies, policies, initiatives, information technology projects that are truly appropriate and can meet the needs and strategies of the company. Based on the role of information technology governance above, effective information technology management is needed so that information technology investment can support the achievement of company goals. Information and technological governance's major aims are:

1. Ensuring that the use of information technology provides value,
2. Ensure managerial performance and
3. Reducing information and technology risk. (Risk Reduction).

The importance of information technology governance arises due to the awareness to comply with good management practices and the fact that many IT facilities, facilities, and projects are out of control and negatively affect organizational performance. The essence of IT governance is that IT arrangements cannot be black-boxed and left entirely to IT professionals. The complexity and linkage of IT with other fields requires that IT management be carried out in an integrated manner, inseparable from other organizational resources.

(Ross & Weill, 2004) defines the governance mechanisms of information technology as the structure, processes, and communications for implementing the desired information technology governance. Mechanism information technology governance (ITG) will have an impact on organizational performance. This is following (Prasad et al., 2012) research that shows that information technology governance mechanisms contribute to organizational performance.

(Peterson Ryan R., 2004) ITG is defined as a situation in which different interested parties have varying levels of authority and responsibility for IT decisions; his study aims to propose techniques and processes for the control and monitoring of successful IT decision-making. expands Peterson's original ITG framework to include a more diverse mix of user structures, processes, and relational mechanisms in optimizing ITG resource allocation to assure responsible decision-making. (S. De Haes & Van Grembergen, 2004). The framework that has been presented by (S. De Haes & Van Grembergen, 2004; Ross & Weill, 2004), the three elements mechanism are the IT governance structure, the IT governance process, and the IT governance relationship.

With a set of mechanisms such as structures, processes, and relational mechanisms an IT governance framework can be applied (S. De Haes & Van Grembergen, 2004; R. Peterson, 2004a; Ross & Weill, 2004; Van Grembergen & De Haes, 2009) that encourage behaviors consistent with the organization's mission, strategy, values, norms, and culture (Ross & Weill, 2004). The effectiveness and efficiency of information technology (IT) in higher education to support studies, teaching, and management in line with information technology governance (Bajgoric, 2014; Bianchi & Sousa, 2016; Conger et al., 2008; Hicks et al., 2010; Subsermsri et al., 2015; Wu et al., 2015a). Effective ITG in universities is strongly linked to the maturity of IT governance processes (Yanosky, R., and Caruso, 2008).

According to (Ross & Weill, 2004), effective information technology governance is the most important factor of an organization's value resulting from information technology. To achieve effective information technology governance requires a set of information technology governance mechanisms. Based on this, a study is needed to repeat in more detail about the formulation of IT governance components in universities, so that the governance model IT management specifically for higher education can be made by universities as the best practice in IT governance is getting even better.

This is in line with the opinion of (Ferguson et al., 2012) who explained that to implement effective information technology governance, a set of information technology governance mechanisms are needed that encourage behavior that is following the mission, strategy, values, norms, and culture of the organization.

IT governance in organizations is an integrated part of overall organizational governance (Steven De Haes et al., 2013a). Based on this, a more detailed review of the formulation of IT governance components in tertiary institutions is needed, so that the IT governance model specifically for universities can be used by universities as best practices in IT governance to be even better. This IT governance component is based on the three elements of the IT governance framework that has been presented by (Ross & Weill, 2004), the three elements mechanism are the IT governance structure, the IT governance process, and the IT governance relationship.

According to (Ross & Weill, 2004) The most significant role of effective value derived from information technology is effective management of information technology. A range of IT governance mechanisms are necessary to accomplish efficient IT governance. (Ross & Weill, 2004) surveyed CIOs of 256 US companies fifteen of the most prevalent mechanisms for IT governance were identified. These include the IS Steering Committee, the IT Executive Committee, the Architectural Committee, etc. This is in line with the opinion of (Ali & Green, 2012) which is why an information technology governance mechanism that promotes behavior according to mission, strategy, values, norms, and organizational culture is necessary to implement effective information technology governance.

Besides, effective information technology (IT) governance is very important for an organization to achieve information technology performance goals in an organization. The effective implementation of Information Technology Governance (ITG) requires a variety of IT governance mechanisms that encourage organizational behavior in keeping

with the mission, strategy, values, standards, and culture of the business i.e. the IT steering committee, the IT organizational structure (Van Grembergen, 2006). A study earlier about the effectiveness of IT governance mechanisms have produced results of a study on how IT governance mechanisms influence the information technology governance effectiveness (Ali & Green, 2012; Ferguson et al., 2013; Ross & Weill, 2004). This emphasized the importance of a set of mechanisms for IT governance, which promote actions, in line with the mission, strategy, values, standards, and organizational culture, to achieve effective IT governance.

Research by (Heindrickson & Santos Jr, 2014) The relationship between three governance mechanisms - IT steering, IT solution manager, and IT portfolio management processes and IT governance effectiveness has been explored. Using the method of sending questionnaires to 180 federal government employees, the results of the study show that there is a positive correlation between the IT steering committee and the IT solution manager and the effectiveness of IT governance. Meanwhile, the IT investment portfolio management process has a negative correlation with the effectiveness of IT governance.

(Ferguson et al., 2013) using 80 Auditors in Queensland, Australia, conducted a study to determine the effectiveness of IT governance mechanisms, revealing that the existence of three mechanisms (IT Steering Committee, senior management involvement in IT, and company performance measurement systems are positively correlated with the effectiveness of IT governance. On the other hand, two other mechanisms (centralization of IT decision making and the position of IT functions within the organization) are not

supported The study (Ferguson et al., 2013) uses a limited sample size and just one ISACA Chapter (Queensland Chapter), limiting the external validity of the study results

(Ali & Green, 2006) Investigated information technology (IT) governance mechanisms in public sector organizations. They find that an effective IT strategy committee and a communication system that effectively disseminates policies and procedures both have a significant positive influence on the overall level of effectiveness of IT governance while the IT Steering Committee, senior management involvement in IT, ethics/propriety culture, and measurement systems company performance has a negative effect on this study.

Mechanism Information Technology Governance (ITG) in public sector organizations investigated by (Ali & Green, 2012). They find that an effective IT strategy committee and a communication system that effectively disseminates policies and procedures both have a significant positive influence on the overall level of effectiveness of IT governance while the IT Steering Committee, senior management involvement in IT, ethics/propriety culture, and measurement systems company performance has a negative effect on this study.

(Ross & Weill, 2004) communication defines information technology governance as a structure, process, and to implement the desired information technology governance. Information technology governance will have an impact on organizational performance. This is consistent with research by (Samuwai & Prasad, 2014) which shows that information technology management contributes to organizational performance.