THE DETERMINANTS OF EFFECTIVE IT GOVERNANCE, CASE OF HIGHER EDUCATION INSTITUTION IN INDONESIA

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ABSTRACT

This considers points to explore the impacts of an IT steering committee (ITS), involvement of senior management in IT (ISM), and an organizational performance measurement system (OPM) on efficient IT governance (ITG) within the framework of Indonesian higher instruction teach. This study used an online survey with self-administered, quantitatively based questionnaires as its methodology. 123 responders were given the tool, which was made using a Google Form and was intended for those who work in university IT governance. The findings indicate that a successful IT governance framework in HEI is significantly influenced by the IT steering committee and organizational performance measurement system. Nonetheless, senior management's involvement in IT had no effect on efficient IT governance. The study's findings can assist HEI management in determining the variables that affect the implementation of IT governance in an efficient manner.

KEYWORDS: Governance, information technology, steering committee, senior management, performance measurement

1. INTRODUCTION

Implementing great data innovation administration in Indonesian higher instruction teach has ended up an awfully vital issue within in the present. Scholars have talked about the idea of IT Governance because researchers have come up with many different meanings. This trend kept going because people paid more attention to IT Governance. IT governance is a strategic problem that requires

commitment from the top level of management in an organization. IT administration should do with who makes choices around IT, how IT is organized, what strategies are utilized, and how connections between IT and commerce work. Compelling IT administration will make beyond any doubt that IT approach making and business objectives are adjusted with the proper procedures. Organizations with terrible IT administration will have issues with their IT assets, such as tall running costs, terrible data quality, and indeed a drop in how well their IT office works. Literature from the past has shown a link between good IT governance and how well a company does. [1].

Researchers have committed a part of consideration to the issues with receiving IT administration since they are seen as curiously and requesting. In the literatures, IT governance has been defined in a variety of ways. IT governance, as defined by [2] is the procedure that guarantees the proper application of IT to help a business accomplish its objectives. Other researchers, however, see IT governance as a subfield within the broader field of corporate governance [3]. In spite of the fact that there are numerous distinctive definitions of IT administration within the writing, researchers by and large concur that "vital arrangement between IT and their trade objective" is an basic portion of any satisfactory IT administration system. Prove illustrating the importance of IT administration shows that companies with strong IT governance had a 25% increase in profitability compared to those with weak IT governance [3].

In order to establish efficient IT governance, the execution of different IT administration instruments is fundamental. These instruments incorporate the foundation of an IT directing committee, an IT methodology committee, the dynamic inclusion of senior administration in IT undertakings, and the utilization of corporate communication frameworks [4]. A later think about has inspected the relationship between cementing vital arrangement and IT administration models, finding that the creation of organizational esteem is encouraged by the usage of compelling IT administration forms. This ponder offers bits of knowledge into the part of key arrangement in directing the effect of IT administration on organizational execution. According to [5], two study considers conducted on past writing have shown that IT administration frameworks and methodology arrangement have a noteworthy effect on organizational execution.

Previous research has indicated that the majority of ponders on IT administration have for the most part centered on the corporate segment and private organizations, with restricted consideration given to open organizations. The execution of IT administration in higher instruction endeavors has particular characteristics when compared to those of commercial organizations. In contrast to the profit-driven nature of commercial expenditures, the higher education sector operates under distinct expectations for outcomes [6]. The investigation of IT governance in non-private sectors is seen as a significant area of research that requires attention. This considers points to examine the adequacy of

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IT administration within the higher instruction division and contribute to the comprehension of IT administration and execution in open ventures.

The centrality of senior administration level at higher instruction educate (HEIs) in connection to IT administration could be a vital determinant of its adequacy. Concurring to the investigate conducted by [7], it was found that the foremost effective organizational structures include the Chief Data Officer (CIO) being a portion of the official board, with a detailing line to either the Chief Official Officer (CEO) or the Chief Working Officer (COO). The objective of this ponder is to help higher instruction teach (HEIs) in comprehending the impact of IT administration on organizational execution and to find out the significant angles that contribute to the effective usage of IT administration. This ponders points to explore the components that contribute to the effectiveness of IT administration in higher instruction.

This research will determine the mechanisms for IT governance and the organizational elements that lead to effective IT governance. Failure to effectively execute IT governance is the bigger issue, not a lack of acceptance. The companies aren't using the strategic alignment that is possible when IT and business objectives are combined. Implementing IT governance is a complex and tough to manage process. This study, drawing on previous work, analyzes the critical success elements for IT governance.

The objective of this consider is to show a proposed demonstrate for evaluating the effectiveness of IT administration inside the setting of Higher Instruction Educate (HEIs). The model was constructed by conducting a comprehensive analysis of existing literature pertaining to the relevant variables associated with IT Governance and their progression. The findings of this study can assist higher education institutions (HEIs) in their management efforts by identifying the components that impact the fruitful execution of IT Administration. Various considers have been conducted inside the domain of connected investigate system of IT administration, such as COBIT and ITIL, among others. In any case, the lion's share of these thinks about essentially concentrates on businesses and trade divisions, with a essential center on the methodologies utilized to produce benefits interior their individual endeavors. This research examines the adoption of IT governance inside the university setting in underdeveloped nations.

2. THEORETICAL REVIEW

There has been a developing body of work on the subject of IT administration execution and advancement in later a long time, with unmistakable cases counting [7], [8]. The study's findings, based on a survey of the aforementioned literature, zero down on mechanisms for IT governance at the person level. The reason of this inquire about was to examine the components, such as an IT

directing committee, senior management's inclusion, and an Organizational Execution Estimation Framework, that contribute to a successful IT implementation at an organization's level. In the next section, we'll take a deeper dive into the literature surrounding the correlated variables.

2.1 IT Governance

Different researchers have presented numerous different definitions of IT governance recently. Researchers have found that IT governance is often discussed within the context of corporate governance. For a business to achieve its goals and keep its risks and resources under control, it must employ good corporate governance processes [9]. [10] proposes an elective definition of IT administration. The creators characterize key arrangement of IT with commerce as the foundation and upkeep of effective IT control and responsibility, execution administration, and chance administration in arrange to maximize commerce esteem. There have been various attempts to define IT governance, but they all seem to center on the same central question: how to ensure that IT supports business goals. Effective IT governance is the result of using governance processes that are well understood and transparent, as well as those that are effectively constructed [11].

The criteria of effective IT Governance were investigated in a case study at a major Australian institution [12]. At first, researchers used a qualitative method, conducting in-depth interviews with important participants. In addition, a survey was conducted to quantitatively evaluate the success of the IT governance framework from the viewpoint of its end users. Key business operations, such as research, often fall heavily on individual shoulders, and this study concludes that IT governance models may have an impact on the spread of technology in such large enterprises. The research also showed that staff members believe a lack of lower-level interaction hinders the spread of technology that is suitable for satisfying user IT needs.

2.2 Hypotheses Development

Drawing upon previous research on IT administration components and the viability of key arrangement between IT and trade destinations, the display ponder presents a investigate show portraying the components of successful IT administration, as seen in Figure 1. The IT administration procedures utilized in this think about are inferred from the work [4] and other notable works, such as [13], particularly inside the setting of Higher Instruction Teach (HEIs). The subsequent formulation of hypotheses is grounded in prior research conducted in the field of IT governance and its subsequent advancement.
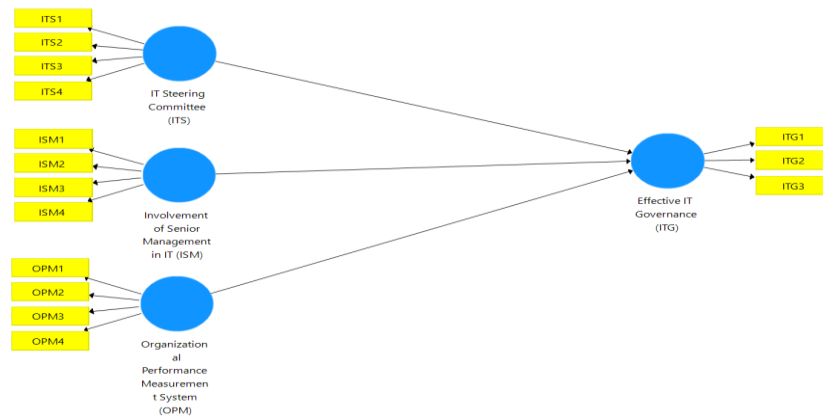
Figure 1. Research Model

2.3 IT Steering Committee

The study undertaken by [14] aimed to investigate the various elements that exert an influence on IT administration structures, forms, and result measurements. The author's conclusion suggests a positive correlation between good IT governance and several key factors, including a mutual comprehension of trade and IT, the dynamic cooperation of IT controlling committees, a adjusted representation of commerce and IT work force in IT decision-making forms, and the clear communication of IT strategies and policies. According to the findings of [15], there is a favorable relationship between the controlling committee and the level of IT-related competences. Therefore, drawing upon the aforementioned findings, the subsequent hypothesis is formulated:

H1: The establishment of an IT steering committee will have a substantial impact on effective IT governance.

2.4 Involvement of Senior Management in IT

Within the realm of IT governance literature, a study carried out by [16] has demonstrated that the active participation of senior management has a notable and favorable impact on the extent of successful IT governance. Similarly, research has demonstrated that the absence of active participation from top management can result in adverse consequences in information systems (IS) planning, including the failure to adequately plan for IS [17]. Thus:

H2: Senior management's involvement in IT will have a substantial impact on effective IT governance.

2.5 Organizational Performance Management System

In order to fulfill the strategic objectives set by senior management in Higher Education Institutions (HEIs), it is imperative to implement efficient performance measurement mechanisms. These

instruments incorporate the utilization of an IT adjusted scorecard and IT charge back frameworks. One of the obligations of the IT technique committee is to supervise the execution of IT ventures and applications. The utilize of such a framework permits senior administration to viably distinguish and rectify any deviations that will emerge, as well as adapt the organizational strategy as needed [18]. According to [19], the utilization of a performance management system plays a crucial role in the successful implementation of IT governance. The implementation of a metric-based system enables management to obtain regular and accurate assessments of the performance of IT in both ongoing operations and recent projects. The subsequent hypothesis is postulated as follows:

H3: The Implementation of a performance measurement system within an organization will have a substantial impact on effective IT governance.

3. METHODS

This investigation employs a quantitative survey as its methodology. Cross-sectional information are utilized to look at a marvel at a specific time. Agreeing to [20], in order to generalize the results of cross-sectional research, a large amount of data is required. This study examines the influence of IT steering committee, senior management involvement in IT, and organizational performance measurement system on IT governance (ITG). The focus of this investigation is Indonesian higher education institutions ITG is required for the effective and efficient use of IT to support university research, instruction, and administration. In the following section, data acquisition and respondent demographics will be discussed.

3.1 Data Collection & Analysis

The first section of the research questionnaire asks respondents about their demographic information such gender, age, and level of education. The second section is a set of rating scales for how people feel about concepts like IT steering committees, senior management's engagement in IT, the reliability of the organization's performance metrics, and the efficiency of IT governance. The statements in the questionnaire are rated on a five-point Likert scale, from 1 (which means "strongly disagree") to 5 (which means "strongly agree"). The survey was created in a Google form and shared online so that respondents may complete it without any help (self-administered). Respondents have the common denominator of being IT specialists at a university or other academic institution. According to the findings of [20], a convenience sample is taken. One hundred twenty-three participants completed the survey for analysis by means of the PLS-SEM method implemented in Smart PLS 3.2.8. The PLS-SEM method was used because of its capacity for overcoming data normalcy with a small sample size [21].

3.2 Demographic of Respondents

Based on the obtained results, a total of 123 valid data points were processed in order to conduct additional analysis. The demographic characteristics of the participants are displayed in Table 2. In relation to gender, the data reveals that there were 69 male respondents, accounting for 56.10% of the total sample, while the remaining 54 respondents were female, representing 43.90% of the sample. In terms of the age distribution, a majority of the participants fell within the 25-34 age range, accounting for 51.21% of the total respondents. This was followed by individuals aged 35-49, who constituted 20.32% of the sample. Respondents above the age of 49 represented 14.63% of the participants, while those below the age of 25 accounted for 13.82% of the total. In terms of educational attainment, the majority of respondents possess a bachelor's degree (57.72%), followed by a diploma (18.69%), high school education (15.44%), and postgraduate degree (8.13%). Within the consequent area, the information were subjected to examination utilizing the Halfway Slightest Squares Auxiliary Condition Modeling (PLS-SEM) approach, a regularly utilized technique inside the space of data frameworks. There are two steps involved in the process of doing PLS-SEM investigation. The primary organize includes building a estimation demonstrate to survey the legitimacy and unwavering quality of the factors. This is followed by the second stage, which involves developing a structural model to test the hypotheses.

Table 1. Demographic of Respondents

Variables	Frequency	%
Gender		
Male	69	56.10
Female	54	43.90
Age		
Below 25	17	13.82
25-34	63	51.21
35-49	25	20.32
Above 49	18	14.63
Education		
High School	19	15.44
Diploma	23	18.69
Bachelor	71	57.72

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Post Graduate	10	8.13

4. RESULTS

In this area, the introductory result displayed the investigation of the estimation show, which included the evaluation of legitimacy and unwavering quality for each develop interior the demonstrate. The moment results of this study involved the application of a structural model analysis to perform hypothesis testing for the three hypotheses put forth.

Measurement Model

During the measurement model stage, an assessment was conducted to examine the convergent validity and reliability of the four constructs that were tested in this study. The examination of convergent validity was conducted by assessing the factor loading and average variance extracted (AVE). On the other hand, the determination of construct reliability was based on measures such as Cronbach's alpha, rho_A, and composite reliability. Based on the findings of [22], it is necessary for the factor loading of each item to exceed 0.7 and for the average variance extracted (AVE) to surpass 0.5 in order to satisfy the prescribed threshold value. Moreover, the unwavering quality of the estimation instrument can be satisfactory in case the Cronbach's alpha, rho_A, and composite unwavering quality values are rise to to or more prominent than 0.7.

Table 2. The Result of Convergent Validity Test

Construct	Item	Convergent Validity	
		Factor Loading	AVE
IT Steering Committee (ITS)	ITS1	0.921	
	ITS2	0.916	0.842
	ITS3	0.921	
	ITS4	0.912	
Involvement of Senior Management in IT (ISM)	ISM1	0.873	
	ISM2	0.906	0.757
	ISM3	0.856	
	ISM4	0.844	
Organizational Performance Measurement System (OPM)	OPM1	0.893	
	OPM2	0.859	0.755
	OPM3	0.815	
	OPM4		

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	ITG1	0.907	0.828
IT Governance	ITG2	0.913	
(ITG)	ITG3	0.923	
		0.894	

According to the data shown in Table 1, it is evident that the factor loading values for each item surpass 0.7, while the average variance extracted (AVE) value also exceeds 0.5. This finding suggests that all items possess validity in representing the constructs. Therefore, the findings pertaining to the convergent validity have satisfied the necessary criteria.

Table 2. The Result of Construct Reliability Test

Construct	Construct Reliability		
	Cronbach Alpha	rho_A	Composite Reliability (CR)
IT Steering Committee (ITS)	0.938	0.938	0.955
Involvement of Senior Management in IT (ISM)	0.893	0.896	0.926
Organizational Performance Measurement	0.891	0.896	0.925
System (OPM)	0.896	0.900	0.935
IT Governance (ITG)			

According to Table 2, it can be shown that the values of cronbach alpha, rho_A, and composite reliability have all surpassed the minimum threshold of 0.7. It indicates that the requirements for construct reliability were accomplished satisfactorily.In expansion, the esteem of the square root AVE is utilized within the assessment of the discriminant legitimacy of the test. Concurring to [23], discriminant legitimacy can be illustrated when a build has a square root AVE esteem that's more prominent than the relationship esteem with the values of other builds. As can be seen in Table 3, the discoveries demonstrate that the criteria for discriminant legitimacy were met.

Table 3. Discriminant Validity

Construct	IT Governance	IT Steering Committee	Involvement of Senior Management in IT	Organizational Performance Measurement System
IT Governance	**0.910***			
IT Steering Committee	0740	**0.918***		
Involvement of Senior Management in IT	0.696	0.775	**0.870***	
Organizational Performance Measurement System	0.774	0.829	0.751	**0.869***

*Square root AVE

Structural Model

At the organize of creating the basic demonstrate, the relationship between the hypothesized develops within the inquire about show displayed in Figure 1 was examined. According to [21], the value of the determination coefficient, also known as R2, as well as the significance of course examination were surveyed in orchestrate to demonstrate how well the data back the hypothesis. Concurring to Table 4, it is evident that the three exogenous builds (IT steering committee, engagement of senior management in IT, and organizational performance assessment system) were successful in explaining 64.3% of the variance in the endogenous construct (IT governance). The results indicate that the model is satisfactory, given that a decent model must have an R^2 value that is greater than 26%.

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Table 4. The Value of R^2
(Determination Coefficient)

Endogent Latent Variable	IT Governance
R^2	0.643

In addition, , there are three theories that have to be be tried in this auxiliary demonstrate. The path coefficient value (β), the T-Statistic, and the significance (P-Value) all need to meet the conditions in arrange to back the proposed speculation. Agreeing to [22] research, the route coefficient demonstrates how strong of a connection there is between the two constructs. It is required that the value of the route coefficient be larger than 0.1, while the significance must be equal to or less than 0.05. Additionally, the recommended value for the T-statistic needs to be higher than 1.96.

The results presented in Table 5 demonstrate that the IT steering committee construct exhibits a statistically significant influence on IT governance (β=0.226, p<0.05, T-statistic=2.169). Additionally, the organizational performance measurement system also displays a significant impact on IT governance (β=0.449, p<0.05, T-statistic=3.100). Consequently, the hypotheses H1 and H3 are supported. Nevertheless, the ponder found that the cooperation of senior administration within the development of IT frameworks does not have a measurably critical affect on IT administration (β=0.184, p>0.05, T-statistic 1.681). Therefore, the hypothesis H2 was not validated in this particular study.

Table 5. Hypotheses Testing

Hyphoteses	Path	B	T-Statistic	P-Value	Result
H1	ITS -> ITG	0.226	2.169	0.031	Supported
H2	ISM -> ITG	0.184	1.681	0.093	Not Supported
H3	OPM -> ITG	0.449	3.100	0.002	Supported

Upon further examination, it can be concluded that, in terms of predicting IT governance, the organizational performance measurement system outperforms the IT steering committee since OPM is stronger than ITS based on the results

5. DISCUSSION

Agreeing to the study's discoveries, the larger part of speculations are backed by existing information. Successful IT administration is basic for an organization to meet its execution destinations. Concurring

to [24], in arrange to execute viable IT administration, a set of IT administration components such as an IT controlling committee, an IT technique committee, senior administration association in IT, an organizational execution estimation framework, and a corporate communication framework that empowers behaviors that are compatible with the organization's mission, technique, values, standards, and societies are required. To put it another way, a company must utilize well-understood, straightforward administration strategies that are well-designed in arrange to achieve successful IT administration [25]. IT administration involves a collection of high-level concepts such as standards, values, and objectives that are operationalized through forms [26]. A set of components, counting structure, forms, and social components, can be utilized to send an IT administration framework. Other considers [24], [27] argue that IT administration can be utilized to convey venture IT administration by combining a assortment of structures, strategies, and social instruments.

The initial findings indicate that the presence of an IT controlling committee encompasses a eminent affect on the adequacy of IT administration. The discoveries of this think about are steady with earlier investigate, as illustrated by [24], who found a favorable association between the presence of a steering committee and the extent of IT-related activities. In a previous study conducted by [28], it was found that there exists a positive relationship between the viability of IT administration and the dynamic interest of IT controlling committees within the decision-making handle with respect to IT things, as well as the clear and successful communication of IT techniques and arrangements. Inadequate planning within the information systems function can compromise the effectiveness of controls that are in place to protect the assets and resources of the organization. [29]. In addition, the IT steering committee holds the primary responsibility for information systems planning. Therefore, the presence of IT steering committees has significant effects on the quality of information systems (IS) planning, the procedures involved in planning, the effectiveness of planning, and the alignment between business and IT strategies Weber (1999). Moreover, the IT steering committee plays a crucial role in the management and allocation of resources inside the firm. By expecting this obligation, the IT controlling committee successfully sets up organization-wide approaches for the execution of controls and forms relating to the upgraded utilization of data innovation [16].

The comes about of the think about too shown that the organizational execution estimation framework encompasses a major affect on the adequacy of IT administration. The discoveries of this consider adjust with earlier investigate, particularly [16], [17], which demonstrate that the usage of an organizational execution estimation framework features a considerable affect on IT administration. In arrange to achieve a state of IT administration within higher education institutions (HEIs), it is important to implement efficient mechanisms for performance measurement. These mechanisms include the utilization of an IT balanced scorecard and the implementation of IT charge back systems. The performance management system integrates a collection of measures to furnish management with

a consistent and precise assessment of the performance of IT in both ongoing operations and new initiatives. This mechanism facilitates the organization's ability to identify and rectify any deviations and adjust the plan as needed. According to [30], the utilization of a performance management system is a crucial component in the successful implementation of IT governance. The balanced IT scorecard is proposed as a methodology that offers advantages by beyond conventional financial evaluation methods and expanding them to encompass metrics pertaining to customer satisfaction, internal procedures, and innovation capabilities. The utilization of the IT balanced scorecard facilitates the firm in achieving optimal utilization of IT resources [31].

Moreover, the present study reveals a noteworthy discovery indicating that the engagement of senior management in information technology (IT) does not have a significant influence on the efficacy of IT governance. The findings of this study are inconsistent with prior research, as indicated by [16], who found that senior management in the field of information technology (IT) had a notable and favorable impact on the extent of effective IT governance. According to [17], insufficient participation from senior management has been found to result in adverse consequences in information systems (IS) planning, including the failure to adequately plan for IS. One potential reason for these findings is that the effectiveness of IT governance mechanisms may vary depending on the industry in which an organization operates. It is likely that governance mechanisms that are well-suited for one industry may not be equally effective in another industry. In their study, [28] have established a foundational set of IT governance processes specific to the financial industry in Belgium. [32] presented information technology governance (ITG) procedures specifically tailored for the Portuguese money related commerce (Pereira, Almeida, et al.) and healthcare industry. The discoveries of this consider show that there are varieties in standard instruments among diverse industry segments, with specific accentuation on the higher instruction division.

6. CONCLUSION

This study aims to evaluate the impact of IT administration strategies on the adequacy of IT administration inside the setting of higher education institutions (HEIs). This focuses about centers on exploring the relationship between the develops of IT directing committee, senior administration engagement in IT, and the organizational execution evaluation framework in association to the adequacy of IT administration in Indonesia. The results indicate that the majority of hypotheses put forth in this study were found to be justified. This suggests that in order to successfully execute IT governance, it is necessary to have a collection of IT governance mechanisms that promote behaviors that align with the organization's mission, strategy, values, norms, and cultures. To establish effective IT governance, it is imperative for a business to have well-understood and transparent governance procedures that are carefully constructed.

The larger part of investigate tends to concentrate on IT administration frameworks at the person level. This consider points to look at the essential determinants of IT usage adequacy, with a particular center on organizational angles. These elements include the presence of an IT steering committee, the level of senior management engagement, and the utilization of an organizational performance assessment system. Higher education institutions (HEIs) that function as complex organizations should regularly assess their IT governance procedures in order to guarantee that there is arrangement between IT and trade goals, and to encourage the effective usage of IT administration. In addition, it is necessary to establish a comprehensive framework, such as the IT balanced scorecard, in order to furnish management with consistent and precise insights into the performance of IT in both ongoing operations and prospective initiatives. Consequently, the firm would be able to identify and rectify any deviations, thereby adjusting the plan to achieve optimal utilization of information technology.

Notwithstanding the intriguing discoveries of our investigation, it is imperative to recognize and address certain constraints. Firstly, this study utilizes cross-sectional data, which implies that the findings may vary if the study were conducted at a different point in time. The generalizability of this study is limited due to the small sample size of 123 respondents. Therefore, it is recommended that future studies consider utilizing longitudinal data and expanding the study to include a larger sample size from different countries. Furthermore, this research can be repeated in several industries beyond the higher education sector.

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