

## Information technology governanc effectiveness in organizations

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### Keywords

Information Technology (IT) Governance, Organization Performance, Enterprise Risk Management, IT/ Business Strategic Alignment, Framework of IT Governance.

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### Abstract

*The purpose of this article is to explore the relevance of information technology (IT) governance in the organizations regarding the relationship between; the information technology governance effectiveness and organization performance, the information technology governance and enterprise risk management, and the relationship between the information technology governance and strategic alignment. Thus, this paper will review recent studies of related dimensions. Several studies reveal that organizations which have adopted an effective IT governance framework; improved their organizational performance, profit, risk management, also improved IT Governance maturity and were capable of strategically aligns IT and business.*

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### Introduction

Information technology (IT) is an integral part and fundamental to support, sustain, and grow a business. IT governance calls for the definition and implementation of formal practices at the highest level in the organization involving structures, processes and relational mechanisms for the creation of business value from IT investments. It is cited as a strategic issue that requires commitment at a strategic level. According to Simonsson and Johnson (2006). Recent studies have shown the impact of ITG on. Therefore, IT governance has several implications that have to be investigated. This paper will investigate the implications through navigating four sections. The first one is presenting the IT governance effectiveness and organization performance. The second section is displaying the relationship between Information Technology Governance (IT) and Enterprise Risk Management. The third section is a review of Information Technology (IT) Governance and Business/IT Strategic Alignment. Finally, a conclusion will be figured out of the study review.

### Information Technology (IT) Governance Effectiveness and Organization Performance

The main objective of IT governance is to manage IT operations, ensuring performance is maximized and benefits are attained, there by accomplishing the advantage of IT investment opportunities. The analysis was done using Exploratory and Confirmatory factor analyses using EQS 6.3 and SPSS 2. Data were collected via a questionnaire distributed to (40) private organizations in the Middle East, comprising a sample size of 179 respondents of strategic and tactical-level managers, Considering the variables information technology governance and performance. The result showed that there is an awareness of the nature of the relationship that IT governance has with its various factors as suggested by the COBIT framework: business/IT alignment, IT value delivery, IT resource management, IT risk management and IT performance. IT risks management is the leading indicator in explaining the IT governance application behavior. IT business alignment" has the least significant impact on the study sample (Alkhalidi et al., 2017)

A development and verification of a causal relationship model had been constructed of the influence of IT Governance Processes on the benefits received by companies. Develop and verify a causal relationship model of the influence of ITG Processes on the benefits received by companies.

The analysis was done using Structural Equation Modeling (SEM). Data were collected via sample of (497) chief ITG officers working in (50) companies with registered capital of more than 100 million baht in Thailand. The result showed that The model was consistent with the empirical data, with a chi-square value of 190.85, a degree of freedom of 166, and a p-value of 0.91. This pointed out that hypotheses of the model could be explained a structure model of ITG, which influence wealth of the companies up to 80 percent ( $R^2 = 80$ ). It is reasonable to imply that ITG influences the benefits obtained by Thai public companies in terms of high capacity of employees, good internal processes, customer satisfaction, loyalty, and stable finances (Chambers & Waitoolkiat, 2016)

Also, an explanatory model of the effects of IT governance mechanisms on IT and organizational performance of public organizations had been fitted. Analysis was done using Structural Equation Model (SEM). Data was collected from a survey conducted in 146 Brazilian public organizations. Considering the ITG: (Structure, Processes, and relational mechanisms) and Organization Performance variables the results showed that IT performance is positively correlated with organizational performance, Relational mechanisms between IT and a business are determinant factors for the performance of IT, and also positively correlated with organizational performance, and decision structure and process maturity are not significantly correlated with IT performance (Amhis et al., 2016).

Moreover, two empirical studies that explore key factors had been conducted to help translate information technology governance by the board of directors into organizational performance. The analysis was done using Structural Equation Modeling facilities of AMOS 24. The data for this study was collected through two samples; for study (1): sample of 472 directors who attended general corporate director governance training programs in Canada. For study (2): sample of 682 directors who attended general corporate director governance training programs in Canada. Considering the variables information technology governance effectiveness and organizational performance, it was found that although people agree that the board of directors is an important group in organizational hierarchy, it is easy to forget its roles in achieving IT-business strategic alignment and driving IT-related performance gains. These studies open up the black box between board-level information technology governance and organizational performance (Turel & Bechara, 2017).

Identifying an ITG mechanisms' baseline for universities was essential. The analysis was done using NVIVO software to transcript and analyzes the qualitative data. Data were collected via semi structured interviews in six universities, two universities in three different countries; Brazil, Portugal and the Nether lands, considering ITG Mechanisms: (Structure, Processes, and relational mechanisms) and performance variables, it was found that IT strategy committee is perceived as essential to define the strategy and business alignment. IT governance structure, important for higher education as it is in the other industries, reveals that universities also desire to have an ITG structure stabilized for decision making. Business/IT relationship managers, is also indicated as other structural mechanisms to compose the baseline. The main role of this mechanism is to make the bridge between the business and IT for a better understanding among stakeholders. Relational mechanisms, it is seen as crucial and also with good effectiveness and ease of implementation. That the processes mechanisms are the most recommended for all industries (Bianchi; souse et al., 2017)

In addition, understanding about the link between ITG and firm performance becomes critical. The analysis was done using multiple linear regressions. The data for this study was collected through sample of 150 participants for (34) firms. Considering the ITG: (Structure, Processes, and relational mechanisms), ITG effectiveness, and Firm performance, the study provided an overview of the status of knowledge in the domain of ITG research, presented five key impact variables which are important in the relationship of ITG and firm performance, and set the basis for future studies on the ITG-firm performance relationship (Vejseli & Rossmann, 2017).

Reporting the initial work involved in developing a construct named IT investment governance (ITIG), it was found that it could be used to measure organizations' capability to govern their IT investments. This analysis was done using Exploratory Factor Analysis (EFA) and T-tests. Data was collected using a sample of (233) top management officers and other senior IT management members within Australian for-profit organizations, Concerning IT governance, and ITG effectiveness. It was found that this paper contributes to the existing body of knowledge about the ITIG construct and ultimately to business organizations by providing: a consistent, research-derived conceptual definition for ITIG, an empirically reliable and valid measure for ITIG as a resource for sustainable competitive advantage, Potential guidance for top management in the implementation of effective ITIG (*Ali & Robb, 2015*)

Further, broadening and strengthening the holistic understanding of IT governance effectiveness, a specific examination why IT governance systems often fail to produce appropriate or desired IT and organizational behaviors. The analysis was done using termed an inside-out model of technology management. Data is gathered through the in-depth study of two case organizations. Forty-seven interviews were conducted across both organizations (25 in City A, 20 in City B and two initial sponsor discussions). Concerning ITG, IT governance effectiveness, and performance variables. It was found that the conceptualization of IT mechanisms in terms of organizational routines privileges the notion that IT governance is first and foremost about supporting and guiding collective action and not simply about designing and implementing formal IT governance artifacts (*Brown & Dillard, 2015*).

Measuring information technology governance in financial institutions is not that easy matter. The data for the study was collected through a sample consisted of (60) professionals from financial institutions operating in Brazil. It was found that the relevance given to the use of IT for decision making, flexibility, growth, and resource management were mostly considered to be very high. IT's influence on final performance did not reach its maximum performance, a factor that is possible to identify by a score of approximately 79.6. The IT Governance concept is still new and that its practice and theoretic basis are still being developed. In this respect, the present paper is relevant because its results can help understand how this administrative practice is being developed in Brazil (*Barbosa et al., 2014*).

In addition, a measurement instrument for IT governance practices was developed, and based on this instrument. The analysis was done using KMO index. Data for this study was collected through a sample of 652 respondents from Brazilian companies, including public, private, and mixed capital companies. 470 companies have private capital, 146 were public, and 36 have mixed (public and private) capital. Considering, Company performance, IT performance, Structures for IT governance, Processes, Relational mechanisms, and ITG effectiveness variables, It was found that business knowledge and relational mechanisms are central components to superior IT and business performance (*Desouza-Bermajo et al., 2014*)

Besides, a study identifies the impact of corporate governance on determining factors of performance in banking sector of Pakistan. The analysis was done using chi-square goodness-of-fit test. The data for this study was collected from commercial banks of Pakistan. Considering the ITG, ITG effectiveness, and Non-Performance variables, it was found that There is strong association of corporate governance and determinants of banking sector performance, banks with good corporate governance show better performance as compared to banks having less corporate governance, Pakistan's banking sector is well established. Banks have good corporate governance to improve their performance and maintain the interest of shareholders, and all banks are performing well by maintaining their profitability, liquidity and continuously growing (*Inam & Mokhtar, 2014*).

The impact of IT governance effectiveness on IT Performance Management was studied. The analysis was done using Exploratory Factor Analysis (EFA) and Structural Equation Modeling (SEM). The data for this study was collected via sample from 87 CIOs of large Brazilian companies.

Considering the IT governance effectiveness, IT governance, and performance management variables, it was found that the level of IT strategic alignment has a significant and positive effect on IT governance effectiveness, The presence of structure, process and relational mechanisms have a significant and positive impact on perceptions of IT alignment, That the level of IT value delivery has a significant and positive effect on IT governance effectiveness, and The presence of different IT governance mechanisms have significant and positive impacts on perceptions of IT resource management, being the process mechanisms (Lunard et al., 2014)

Some important reasons were identified about why IT audits needs to be done on Bank. Through questionnaire data were collected directly from (65) top and middle level management (Board of Directors, head of division, and chief of staff) in Bank Indonesia. Considering the ITG Structure, and Financial enterprise performance as variables, it was found that the maturity level average was defined, IT management performance has developed until a phase where standard procedure and documentation process has taken place because of formal training for the users, many shortages could not be detected maximally by the management although there was a policy created previously (Ratih & Setyarini, 2014).

Accordingly, the strategic action of IT governance was provided for organizations in universities in Thailand. The analysis was done using t-test. Data was collected via collected survey data from 64 IT executives from 117 universities in Thailand. Considering ITG, ITG effectiveness, and Organization Performance variables, it was found that in order to decrease capital risk and failure of trial and error, universities should primarily analyze their current situations of IT governance performance before performing any other actions on IT governance. Thai universities can apply the attributes that fall into the keep up the good work as the baseline indicators for driving IT governance in their universities (Jairak, et al., 2014).

From the professional's perception, a study was conducted to define the most relevant criteria for measuring ITG effectiveness based on IT. The analysis was done using Thematic content analysis. Data was collected using a sample of involved professionals linked to 45 companies: 11 Chief Information Officers (CIOs), 4 IT managers, 13 IT coordinators, 15 governance analysts and 2 IT researchers. Concerning the IT governance effectiveness and Performance. I was found that there is a set of nine significant criteria for monitoring ITG effectiveness; Quality of IT services, Economic and financial, Physical and logical IT infrastructure, information security, Strategic alignment Stakeholder satisfaction, Training and Knowledge, Risk management, Internal and external compliance. The results also include the analysis the relationships perceived by these professionals about which were the most suitable indicators for measuring ITG effectiveness (Wiedenhof, et al., 2014)

Attempting to gain insight into IT governance attitudes, perceptions, and to reject or fail to reject some initial hypotheses concerning such IT governance attitudes, perceptions, and knowledge levels within this organization and their possible impacts. The analysis was done using chi-square goodness-of-fit test. Data was collected via a sample of 51 respondents who were randomly recruited from more than 10 federal IT contractors. Considering ITG effectiveness and Performance variables, it was found that the exact role and function of IT governance was not well understood and often confused with the more tactical role of IT management. The confusion about the functions and roles of IT governance had its origins in the limited number of opportunities that personnel in these organizations had to learn about IT governance during their careers (Martin, 2013)

The main objective of Tabach was to investigate the impact and role of implementing information technology (IT) governance practices on the business value driven from IT. The analysis was done using Delphi Method Descriptive Analysis on SPSS. 57 matched surveys were collected from North America and the Middle East. Considering the following variables IT governance, ITG effectiveness, and Performance, it was found that significant links were found between the different configurations and the non-financial performance of a business unit, and the configurations with

higher maturity showed stronger correlation and variance with the different constructs of the Business Unit Non-financial Performance. No significant impact on the business unit financial performance was found, and Implementing different sets of IT governance practices within organizations can result in different levels of performance at the business unit level in terms of business processes, decision making and legal and ethical compliance (*Tabach, 2013*).

Aaij et al (2013) examine the relationship between governance structures, practices and the performance of the university sector in Australia. The analysis was done using both descriptive statistics factor and correlation analyses and analysis of variance and regression. Data was collected through a sample of 37 out of the 39 publicly-funded universities in Australia between 2005 and 2007. Concerning the variables ITG, IT governance structures, and Performance, the study provides evidence in support of a positive relationship between establishment of council committees and overall performance, and strong positive correlations with research and financial performance. The agency theory argument that independent committees influence better performance through close monitoring. The study did not find evidence of a statistically significant relationship between transparency in reporting and performance during the period under study. The positive relationship between size of the university and the research performance and the negative relationship between size and teaching suggests that bigger universities are more research oriented while the smaller universities highly emphasize teaching quality (*Aaij, et al., 2013*).

Chinese culture influences the performance ITG capabilities in organizations and how this influence is manifested. The analysis was done using Descriptive Analysis. Data was collected using Chinese listed companies the dominating shareholders. Considering the IT governance capabilities, ITG effectiveness, and Chinese culture influences, and ITG performance variables, it was found that to improve the ITG performance the study suggests a series of conditions in which conflicts between cultural influences and ITG capabilities can be mitigated (*Zhong et al., 2012*)

An investigation was conducted of IT projects in South African organizations to determine whether generally accepted governance principles were applied in the project domain. The analysis was done using COBIT. Data was collected using 16 semi-structured interviews were conducted to understand current practice from the banking environment, mobile telecommunications environment, agricultural as well as petrochemical industry, Considering the following variables TG effectiveness and Performance. It was found that the majority of the organizations do have corporate governance in place but that they do not comply with IT and IT project governance. It is important that organizations embrace IT governance in the form of COBIT, if not for the sake of good governance, then at least to improve the quality of the IT-related investments and therefore enhance profits (*Marnewick & Labuschagne, 2011*)

A theory-based framework that proposes and explains the positive impact of IT governance on the business performance of the firm was introduced. The analysis was done using chi-square. Data was collected via eleven exploratory case studies with senior IT executives of major multinational corporations. Considering ITG structure, ITG effectiveness, and Business Performance variables, it was found that IT governance is positively related to business performance through the mediators IT relatedness and business process relatedness. IT relatedness and business process relatedness do not only create value independently, but that they rather are interdependent and mutually reinforcing, therefore creating additional value if pursued concurrently (*Lazic et al., 2011*).

Investigating Jordanian public sector readiness to implement IT Governance concepts, in order to enhance Performance in Jordanian public sector organizations. The analysis was done using SPSS 15 and SmartPLS 2.0 and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy. Data was collected via sample of 26 Jordanian in public sector. Considering the IT governance and performance variables, it was found that, there is an existence of the relationship between IT Governance and its Pillars: accountability, transparency, participation, and predictability. There is a relationship between IT Governance and Performance (*Pillars, 2010*).

Exploring the importance, measurement, and the usage of the of ITG model in evaluating the ITG performance in Saudi organizations. The collected data has been analyzed using (SPSS) version 14 and non-parametric tests (Kruskal-Wallis tests). Data was collected via different types of Saudi organizations (Manufacturing, merchandising, insurance, oil and gas, and service companies, health care organizations, government units, banks, and others) in (5) Saudi cities: Riyadh, Jeddah, Dhahran, Dammam, and Al-Khobar. The results showed that Saudi organizations should achieve better governance of their IT in order to ensure that an organization's IT strategy is aligned with and supports the overall organization's strategy and IT supports the organization's ability to exploit opportunities and maximize benefits (*Abu-Musa, 2007*).

### **Relationship between Information Technology Governance (IT) and Enterprise Risk Management**

This study sought to explore that IT governance effectiveness is correlated with project portfolio control, risk management, and business/IT alignment. The collected data has been analyzed using multiple linear regressions. Data was collected via sample of 305 participant for-profit organizations in the United States. Considering the ITG effectiveness, Project portfolio control, risk management, and Performance variables, it was found that study helps shed light on the relationship between effective IT governance and project portfolio control as well as provides support to the existing literature on the relationship between effective IT governance and risk management (*Parry, 2014*).

The purpose of this paper is to illustrate how information technology governance (ITG) supports the process of enterprise risk management (ERM).the collected data has been analyzed using Structural Equation Modeling (SEM).data was collected via sample from 35 of companies. Considering ITG, ITG effectiveness variables, it was found that adopting an IT governance framework is an opportunity for companies and a new way to implement an internal control system that can result in certain advantages for the entire organization. The ERM COBIT integrated approach provides management with one of the more evolved tools in terms of compliance; in general .An effective improvement in terms of company management is not always achieved when adopting an IT governance framework. The effectiveness of the implementation of a framework, whether or not related to IT governance or to the internal control and risk management system, depends on the underlying reasons of its introduction (*Rubin, 2014*).

### **Information Technology (IT) Governance and Business/IT Strategic Alignment**

This research aims to identify specific management practices that can help to improve the process of IS/business alignment and the design of ITG architecture that supports those processes. The research was done using Nvivo 8.0. Data was collected using large leading international food and beverage company, it was found that at operational and tactical levels, improving the coordination of the IT investment management process and enabling structures that strengthen the connection of budgetary controls are core structural capabilities that can positively improve the process of IS/business alignment and impact significantly the design of ITG architectures. Operational positions evidenced that the IT understanding of business influences their tactical relational, process and structure capabilities (*Orozco, et al., 2015*)

The purpose of this quantitative correlation study was to test the extent to which IT structure and federal IT governance structure within the organization. The analysis was done using statistical correlation including Kruskal-Wallis one-way analysis of variance (ANOVA), Mann-Whitney U test and logistics regression the sampling frame were about 3000 business professionals from medium and large sized companies in the United States of which 138 responded in the time allotted for data collection. Concerning IT governance effectiveness, Performance, ITG Structure, and Performance, it was found that there is no significant relationship between IT strategic alignment and levels of IT governance structure and federal IT governance structure within the organization. (*Gordon, 2013*)

In order to better understand the impact of IT governance, this dissertation examines the role of governance mechanisms in two areas of IS research: strategic alignment and IT outsourcing. Analysis was done using correlation matrix, The MASEM analysis, and Amos Graphics to run the model fit statistics. Data was collected via sample of 36 Executive MBA students with business and IT backgrounds attending a large Taiwanese university. It was found that the highly correlated relationship between trust and knowledge sharing is actually contributed by a strong mediator: mutual commitment. In countries with high levels of uncertainty avoidance such as South Korea, people feel uncomfortable when faced with challenges or uncertain situations. Therefore, without mutual commitment to a long-term relationship, active knowledge sharing behaviors would not occur even when the trusting relationship has already been established between the contracting parties. Relational exchange behaviors such as partnership maintaining and knowledge sharing were found to be important intervening variables that mediate the impact of ongoing trust and mutual commitment on IT outsourcing success, and they equally contribute to the success of IT outsourcing. Trust is a necessary but not sufficient determinant for relational exchange behaviors to occur. Mutual commitment is an indispensable component for successful IT outsourcing governance (*Wu et al., 2013*)

Main objective of this paper was to stress the importance of evolving IT Governance activities. Data was collected via sample of selected (100) (CIOs and CEOs) of sample of 5 small banks in Croatia during the period 2008-2010. It was found that explained external and especially national IT Governance regulation framework in the Republic of Croatia, construct the research model upon the strategic IT/Business alignment and IT Governance issues and conducted the research by the series of long-lasting comprehensive in-depth interviews with responsible employees (CIOs) in selected small banks in Croatia. National IT Governance regulatory framework can help in improving IT Governance maturity and strategically align IT and business and confirm our research question. The research might be useful because of fact that similar efforts are very rare (if there are any of them) and there are modest evidences how industry best practices and national regulations are used in the real business environment (*Spremic, 2012*)

The purpose of this quantitative correlational study is to explore the extent to which IT strategic alignment is impacted by IT governance structural elements. The analysis was done using Chi Square tests. Data was collected via a sample came from 4000 business and technology managers and executives of which 300 responded. Considering ITG structure, and ITG effectiveness variables, it was found that there is no correlation between IT strategic alignment and IT governance. There is a positive correlation between IT strategic alignment and IT governance. There is a positive correlation between IT strategic alignment and Centralized IT governance structure. There is a positive correlation between IT strategic alignment and Decentralized IT governance structure. There is a positive correlation between IT strategic alignment and Federal IT governance structure (*Asante, 2010*)

## Conclusion

Organizations face convolutions in business given a multitude of challenges such as globalization, knowledge economy, and even disasters. At the same time, organizations are expected to conform to corporate governance best practices. IT governance is a part of corporate governance cited as a means to help organizations to improve the organizational performance in terms of high capacity of employees, good internal processes, customer satisfaction, loyalty also it help organizations to constructs a stable finances, manage risk and protect organization from technology-related losses. The importance of IT governance is evident through the attention it receives from scholars and practitioners. As a result, this paper demonstrates a literature review of several studies that integrates both determinants and impact of IT governance effectiveness in different kind of organizations. It is worth mentioning that the relationships between each determinants (i.e. organizational performance, enterprise risk management, IT/business strategic alignment) and IT

governance is significantly positive based on the outcome of the researcher's that mentioned previously in this paper. With insight into these determining factors, organizations further gain an understanding into their impacts on IT governance effectiveness. Consequently, this assists organizations with improvement.

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