



A Review on the Relationship Variables of IT Governance and Organization Performance

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Abstract: This research review investigates from the variety of literature support for the relationship variables with information technology governance and organization performance. To broaden and facilitate further research in contextually and empirically, a mind-map reveals to show how these relationship variables relate with information technology governance and organizational performance. This review research consist several associations with other related variable which are powerfully supported by observed evidence. Researchers and practitioners will highly benefit from this research mind map and extensive literature evidence. It enables them to formulate and further explore the hypothesis, conceptual model and structured equation model.

Keywords: Information Technology Governance, Organization Performance, Relationship, Mind-map.

This paper shows conceptually how IT governance and organization performance link to each other and other related variables. In this context, the definition of IT governance and organization performance and their related variables from the existing literature were presented. Further, this paper portrayed range of literature in relation to the relationship of IT governance to organization performance and other related aspects, and finally it shows a mindmap of this review that can assist the studies related to the IT governance and organization performance. This study is primarily in the existing literature in which it tries to explore clear evidence on the association between IT governance and firm performance.

Definitions of IT Governance

IT governance is one of the emerging concept which plays a vital role in information technology era. There are numerous definitions forwarded to IT governance but the followings are the highlighted ones.

Information Systems Audit and Control Association (ISACA) define IT governance as:

"The responsibility of executives and the board of directors; consists of the leadership, organizational structures and processes that ensure that the enterprise's IT sustains and extends the enterprise's strategies and objectives."

The IT Governance Institute (ITGI) define IT governance as:

"IT governance is the board's ability to direct and control the enterprise's use of IT resources in line with strategic goals. Leadership, organizational structure and processes are used to leverage IT resources and drive alignment, the delivery of value, management of risk, optimization of resources and performance measurement."

Steven De Haes and Wim Van Grembergen (2004) define as *"IT governance is the responsibility of the Board of Directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization's IT sustains and extends the organization's strategy and objectives"*

Kapil Dev Singh (2011) define *"IT governance is the role, authority and accountability regarding various decisions related to IT adoption, deployment and usage. Different decision areas comes under IT governance are IT Vision & Strategy, IT Architecture & Infrastructure, Business Applications & IT investments"*.

Craig Symons *et al* (2005) define *"IT Governance as the process by which decisions are made around IT investments. How decisions are made, who makes the decisions, who is held accountable, and how the results of decisions are measured and monitored are all parts of IT governance"*.

Literature review and variables associated with IT governance

Paul L. Bowen *et al.* (2007) indicated that more effective IT governance performance outcomes are associated with a shared understanding of business and IT objectives, active involvement of IT steering committees, a balance of business and IT representatives in IT decisions, and comprehensive and well-communicated IT strategies and policies. Further they indicated that IT governance plays a major role in encouraging project success and delivering business value and effective IT governance generates real business benefits such as enhanced reputation, trust, product leadership, and reduced costs.

Bin Gu *et al* (2008) firms with high IT governance misalignment receive no benefits from their IT investments; whereas firms with low IT governance misalignment obtain two to three times the value from their IT investments compared to firms with average IT governance misalignment. They highlighted that when IT investment is small, IT governance will have little impact on firm performance. Thus IT governance moderates the relationship between IT investment and firm performance.

Bin Gu *et al* (2008) mentioned in their research that when IT investment is small, IT governance will have little impact on firm performance. The influence of IT governance rises with the scale of a firm's IT investment.

Liang Ting Peng *et al* (2011) emphasizes that maturity, decision level and IT professionalism in IT governance enable strategic alignment which in turn yields better organizational performance. Further they found that strategic alignment plays a major role in mediating the impact of IT governance structure on organizational performance and IT leadership plays a major role of IT governance practices, which can create positive impact on strategic alignment and firm performance.

Rui Huang *et al* (2009) mentioned that senior management should be jointly (both formally and informally) involved with IT decision-making processes and IT governance policies, guidelines and practices should be communicated to organizational members via more accessible communication channels.

Richard John Pritz (2013) found the relationship such as business process improvement confirm the

relationship with IT governance capabilities and firm performance. Further the IT Infrastructure capability (data integration, IT facilities and management, and training) confirm the relationship with IT governance capabilities and firm performance. The IT governance process formality moderator had no moderating impact on the IT governance capability and data integration. On the other hand it impacted negatively both the training and IT facilities and management capabilities. The moderating effect of IT governance process formality on the IT governance capability and business process improvements relationships was confirmed positively. IT intensity moderator had a moderating impact and confirm on the IT governance capability and data integration capability relationship.

Boritz J. Efrim and Lim Jee-Hae (2008) concluded that IT governance effectiveness is significantly associated with reduce IT control weaknesses and by reducing it and their associated costs, IT governance contributes to improve financial performance and which further improve the firm performance.

Steven De Haes and Wim Van Grembergen (2009) discovered a clear relationship between the use of IT governance practices and business/IT alignment and found that business/IT alignment maturity is higher when organisations are applying a mix of mature IT governance practices. Further they highlight that it is easier to implement IT governance structures compared to IT governance processes and relational mechanisms.

Guilherme Lerch Lunardi *et al* (2009) indicated that IT governance adopters improved sensitively their organizational performance when compared to the control group, mainly profitability measures (such as ROA, ROE and profit margin). Further they found that IT governance mechanisms have been used essentially in the interest of firms efficiencies, such as cost reduction or better IT infrastructure utilization.

Steven De Haes and Wim Van Grembergen (2005) mentioned that an organisation can implement IT governance using a mixture of processes, structures and relational mechanisms. Their goal of this research is to measure the association between the established IT governance framework and the degree of achieved strategic alignment.

Acklesh Prasad *et al* (2012) conducted that there is a favorable association between organizations IT governance efforts and their ability to leverage their IT resources. These IT resource capabilities also

relate to measure business value at the process and firm level. This research assume that collaborative organizations' IT governance efforts contribute to business value.

Wim Van Grembergen *et al* (2004) highlighted the key elements in IT governance are business-IT alignment and the achievement of business value through IT. IT governance can be achieved by acknowledging IT governance framework and its corresponding best practices. Such a framework and

Definitions of organization performance

Management books are referring various phrases for organization performance such as organizational effectiveness, organizational efficiency, organizational alignment, and many others. A simple definition can be put forward for organization performance as when all the parts of an organisation work together to gain great results with results being calculated in terms of value that deliver to customers.

Richard Pierre J (2008) define organizational performance includes three specific areas of firm

outcomes such as *financial performance* (profits, return on assets, return on investment, etc.); *market*

Literature review and variables associated with organization performance

Gavrea *et al* (2011) used 10 determinant variables for organizational performance such as strategy, leadership, structure, quality, innovation and development, information technology, performance measurement, employees, corporate governance and external environment. Among these 10 variables only the structure variable didn't have a significant relationship with the overall score of organization performance.

Gary S Hansen and Birger Wernerfelt (1989) found that firm performance is decided by two paradigm such as economic paradigm and organizational paradigm. They confirm the importance and independence of both paradigm of factors in explaining firm performance. They found that organizational factors explain twice as much variance in firm profit rates as economic factors. Further they highlighted the factors such as industry selection, positioning within an industry, good administrative practices, economic and organizational effects and an

practices should be composed of a variety of structures, processes and relational mechanisms.

Prasad Acklesh *et al* (2009) suggested that firms' effectiveness of IT steering committee-driven IT governance initiatives are positively related to the level of their IT-related capabilities. They found positive relationships between IT-related capabilities and internal process-level performance and improvement in internal process-level performance will be positively connected to development in customer service and firm-level performance.

performance (sales, market share, etc.); and *shareholder return* (total shareholder return, economic value added, etc.).

Carter McNamara defines organizational performance engage the recurring activities to establish organizational goals, monitor progress toward the goals, and make adjustments to achieve those goals more effectively and efficiently.

Bibhuti Bhusan Mahapatro (2010) defines the ability of an organization to fulfill its mission through sound management, strong governance and a constant rededication to achieving results.

effective, directed human organization are important contributors to firm performance.

Jong-Il Kim (2004) concluded that the IT investment enhances productivity by increasing value added and saving ordinary capital and labor in organizations. Moreover, this study found some evidence supporting the positive role of IT investment in enhancing firm productivity.

Irge Sener *et al* (2011) conducted a research on the effect of board composition on organizational performance under different environmental conditions which are measured in terms of munificence and dynamism of the industry in which the organizations function. Building on resource dependence theory, it is suggested that under different environmental conditions, different compositions of boards will positively influence organizational performance.

Kabiru J. Ringim *et al* (2012) conducted a research to determine the effects of IT capability on the organizational performance of Nigerian banks. The overall findings of this study have proven that

relationship between IT capability and organization performance have been established.

Cemal Zehir *et al* (2010) investigated IT investment level, IT usage, IT at making decision process concepts and their effects on technology orientation, future orientation and firm performance for their research. The results show that future orientation IT investments have significant positive effect on firm performance. They also found a positive relationship between IT usage and firm performance.

Donald W. Beard and Gregory G. Dess (1981) found the importance of corporate-level strategy and business-level strategy in explaining firm profitability and the results indicate that both are important to achieve organizational performance.

John T. Delaney and Mark A. Huselid (1996) suggested in their research that progressive HRM practices including selectivity in staffing, training, and incentive compensation, are positively related to perceptual measures of organizational performance.

Mark A. Huselid *et al* (1997) conducted a research on technical and strategic HRM effectiveness as determinants of firm performance. They found the significant relationships between strategic HRM effectiveness and employee productivity, cash flow, and market value are reliable with institutional theory and the resource-based view of the firm. Further they found no meaningful relationships between technical HRM effectiveness and firm performance.

Tod Perry and Anil Shivdasani (2005) conducted a research and concluded that firms with a majority of outside directors on the board are more likely to initiate asset restructuring, employee layoffs and that reduction in the scale of operations is larger for these firms than firms without a majority of outside directors. They also found succeeding improvements in operating performance for firms with a majority of outside directors that restructure. They conclude that board composition has a material impact on firm performance.

LIU Yongmei *et al* (2008) conducted a research to find how IT capability might moderate the relationship between IT investment and firm performance. They concluded that the IT capability is assumed to be an important moderator variable rather than a mediator variable connecting IT investments to firm performance. With the IT capability as a

moderator rather than a mediator, the model could more accurately explain the relationship between IT investment and firm performance.

Namchul Shin (2006) highlighted in his research the business value of IT by showing the importance of the complementarity of IT and diversification in firm performance which has also received limited consideration in previous IS research.

Muhammad Haroon Hafeez *et al* (2012) conducted a research by reviewing the literature proposing that innovation has causal linkages with entrepreneurial orientation, firm resources, branding and firm performance. It also proposes a theoretical framework where innovation mediates the relationship between entrepreneurial orientation, firm resources, SME Branding and firm performance.

Bou-Wen Lin (2007) mentioned in his research that the IT capability and human capital investment contribute directly to the overall value-creation performance of US public banking firms. Further he highlighted in the study that IT capability and human capital investment can have a negative interactive effect on the firm's value creation. The results also propose that human capital is a precious form of intellectual assets that add positively to firm performance over the long term.

Patrick Ogebe *et al* (2013) provide the strong evidence in support of the traditional theory of capital structure which stated that leverage is a significant determinant of firms' performance. A significant negative relationship is established between leverage and performance. They strongly suggested that firm should use more of equity than debt in financing their business activities this is because in spite of the fact that the value of a business can be enhanced with debt capital.

Lorne N Switzera and Mingjun Tangb (2009) observed significant interactions between board independence, firm leverage, CEO ownership, and pay-performance sensitivity. The CEO's ownership in firms is optimally aligned with performance. The deployment of governance mechanisms is observed for the sample as a whole and excess leverage which significantly reduces firm value is observed. Larger board sizes are damaging to performance. Pay-for performance compensation for CEOs, on the other hand is beneficial for small-cap firm performance.

Methodology

This research try to explore the factor or variable which are related to the primary variable of this research thus IT governance and organization performance. The extensive literature review was conducted in these primary variable to find the supportive variables or factors. The mind map shows clearly the related supportive variables with the notation based on its impact with other variable. The arrow mark show the direction of relationship between the primary and other supportive variables. The below mind-map shows the various observed variables and factors which are associated with IT governance and organization performance. Inside the circle the number refers the reference number of the article in which the variable / factor is mentioned. The sign (+ or -) indicate the type of relationship between or among these variables. The + sign

indicate this variables has positive relationship and the - sign indicate that this variable has negative relationship with their variable. The circle with only the number indicate that in the particular article this factor was mentioned. Inside the circle the "m" refers that the variable has moderate level relationship. Table 01 shows for this primary variables (IT governance and organization performance) how other associated variables mentioned and their level of association indicated in Prior Studies. This review research consist several constructs and associations which are powerfully supported by empirical evidence on the other hand some of which has not investigated previously. Researchers and practitioners will highly benefit from this research mind map, because it enables them to better formulate and develop hypothesis, conceptual model and structured equation modeling.

In below figure 01 the numbers and signs in a circle indicate respective references as indicated below.

SN	Reference	SN	Reference
1	Craig Symons <i>et al</i> (2005)	18	Donald W. Beard and Gregory G. Dess (1981),
2	Steven De Haes & Wim Van Grembergen, (2004)	19	John T. Delaney and Mark A. Huselid (1996)
3	Kapil Dev Singh (2011)	20	Mark A. Huselid <i>et al</i> (1997)
4	Paul L. Bowen <i>et al</i> (2007)	21	Tod Perry and Anil Shivdasani (2005)
5	Gu Bin <i>et al</i> (2008)	22	LIU Yongmei, et al (2008)
6	Liang Ting-Peng <i>et al</i> (2011)	23	Namchul Shin (2006)
7	Gavrea et al (2011)	24	Muhammad Haroon Hafeez, <i>et al</i> (2012)
8	Gary S. Hansen; Birger Wernerfelt (1989)	25	Guilherme Lerch Lunardi, <i>et al</i> (2009)
9	Rui Huang, <i>et al</i> (2009)	26	Bou-Wen Lin (2007)
10	Thouin, M. <i>et al</i> (2008)	27	Steven De Haes, Wim Van Grembergen (2005)
11	Richard John Pritz (2013)	28	Patrick Ogebe et al (2013)
12	Boritz, J. Efrim and Lim Jee-Hae, (2008)	29	Acklesh Prasad, et al (2012)
13	Jong-Il Kim (2004)	30	Lorne N. Switzera, and Mingjun Tangb(2009)
14	Steven De Haes and Wim Van Grembergen. (2009)	31	Wim Van Grembergen, Steven De Haes and Erik Guldentops,(2004)
15	İrge Şener <i>et al</i> (2011)	32	Prasad, Acklesh <i>et al</i> (2009)
16	Kabiru J. Ringim <i>et al</i> (2012)	33	Richard, Pierre J. <i>et al</i> (2008)
17	Cemal Zehir <i>et al</i> (2010)	34	Bibhuti Bhusan Mahapatro,(2010)

Table 01 : Key Variables mentioned in Prior Studies

Prior Studies		Key Variables / Factors associated with IT Governance								
Year	Author(s)	IT Investment	Strategic Alignment	IT Leadership	Reduce IT Control Weaknesses	Business-IT Alignment	Delivering Business Value	Regulatory Compliance	Project Success	Business Process Improvement
2007	Paul L. Bowen <i>et al</i> [4]						X, S		X, S	
2007	Bou-Wen Lin [26]	X								
2008	Gu Bin <i>et al</i> [5]	X, M					X, S			
2008	Boritz, J. Efrim and Lim, Jee-Hae [12]				X, S			X, S		
2009, 2005	Steven De Haes , Wim Van Grembergen [14] , [27]					X, S				
2010	Cemal Zehir <i>et al</i> [17]	X								
2011	Liang, Ting-Peng [6]		X, S	X, M						
2012	Acklesh Prasad <i>et al</i> [29]						X			
2013	Richard John Pritz [11]									X, S
		Key Variables / Factors associated with Organization Performance								
Year	Author(s)	Performance Measurement	Firm Productivity	IT Investment	Human Capital Investment	Strategic Alignment	Corporate, Business Level Strategy	Strategic / HRM Practices	Improve Financial Performance.	Innovation
1981	Donald W. Beard and Gregory G. Dess [18]						X			
1996	John T. Delaney and Mark A. Huselid [19]							X, S		
1997	Mark A.Huselid <i>et al</i> [20]							X, S		
2004	Jong-Il Kim [13]		X							
2007	Bou-Wen Lin [26]			X, S	X, S					
2008	Gu Bin <i>et al</i> [5]			X, S						
2008	LIU Yongmei, <i>et al</i> [22]			X, M						
2008	Boritz, J. Efrim and Lim Jee-Hae [12]								X, S	
2010	Cemal Zehir <i>et al</i> [17]			X, S						
2011	Liang, Ting-Peng [6]					X, S				
2011	Gavrea <i>et al</i> [7]	X, S								
2012	Muhammad Haroon Hafeez, <i>et al</i> [24]									X, M

X : Factor included in study/s. **S**: Factor found to be significant in the study. **M** : Factor found to be moderate level relationship in the studies

Discussion and Concluding Remarks

This research reviews the exiting literature in a thorough manner in a bid to build a novel evidence which support that the IT governance has causal relationship with organization performance. This research review provides explanation from exiting studies in extensively on IT governance and organization performance with their related components and variables. There is a literature evidence that IT governance adopters improved their organizational performance.(eg. Guilherme Lerch Lunardi 2009). IT governance plays a major role in encouraging project success and delivering business value (eg. Paul L. Bowen *al* 2007; Acklesh Prasad *al* 2012)

Further this research review provides evidences for the relationship of IT governance with other variable such as business value of IT (eg. Gu, Bin *al* 2008), structure, processes and relational mechanism (eg. Steven De Haes *al* 2005; Wim Van Grembergen *al* 2004), business/IT alignment (eg. Steven De Haes *al* 2009; 2005), project success (eg. Paul L. Bowen *al* 2007), regulatory compliance (eg. Boritz, J. Efrim *al* 2008,) IT-Related capabilities (eg. Prasad Acklesh *al* 2009), strategic alignment (eg. Liang, Ting-Peng, 2011), reduce IT control weaknesses (eg. Boritz, J. Efrim 2008), business process improvement (eg. Richard John Pritz 2013), senior management involvement (eg. Rui Huang, *et al* 2009), IT-related capabilities (eg. Prasad, Acklesh; *et al* 2009), Maturity, decision level and IT professional orientation (eg. Liang Ting-Peng *et al* 2011), IT resources (eg. Acklesh Prasad *et al* 2012), enhanced

reputation, trust, product leadership, and reduced costs. (eg. . Paul L. Bowen *al* 2007).

Moreover this review provides the relationship of organization performance with other variables such as IT investment (eg. Gu, Bin *al* 2008; Cemal Zehir 2010; Bou-Wen Lin 2007), cooperate level strategy and business level strategy (eg. Donald W. Beard and Gregory G. Dess 1981), innovation (eg. Muhammad Haroon Hafeez *al* 2012), IT usage (eg. Cemal Zehir, 2010), human capital investment (eg. Bou-Wen Lin 2007), strategic alignment (eg. Liang Ting Peng 2011), improve financial performance (eg. Boritz, J. Efrim 2008), IT infrastructure capability (eg. Richard John Pritz 2013; LIU Yongmei, *al* 2008), strategic HRM practices (eg. John T. Delaney 1996; Mark A. Huselid 1997), information technology (eg. Liang Ting Peng 2011; Kabiru J. Ringim 2012), IT Leadership (eg. Liang Ting-Peng *et al* 2011), External environment (eg. Gavrea *et al* 2011), internal process-level performance (eg. Prasad, Acklesh; *et al* 2009), business value of IT (eg. Namchul Shin 2006), IT outsourcing (eg. Thouin, M. *et al* 2008), strategy, leadership, structure, quality, innovation and development, information technology, performance measurement, employees, corporate governance and external environment. (eg. Gavrea 2011). To broaden and facilitate further research with the literature support, a mind-map (see. Figure 01) portray these relationship variables to IT governance and organization performance. It would highly support for further research in a way of modeling and formulating structural equation modeling research in these primary research variable thus IT governance and organization performance and other associated supportive variables.

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