

The Influence of Culture on IT Governance: A Literature Review

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Abstract

IT governance is crucial for managers to regulate the decision rights and responsibilities that the desired IT behaviors and business objectives are aligned with each other. Additionally, culture in national, organizational or group level can play a role in IT governance and this role is rarely explored in academic research. This paper provides a literature review investigating the impact of culture on IT governance. It is aimed to find the linkage between these two concepts and to promote this area for future research. The literature review was done systematically and the findings are categorized by using an IT governance framework which includes three main components: structures, processes and relational mechanisms. The results indicate there is an influence from national and organizational culture on IT governance, especially on relational mechanisms. However, the number of studies is very few and there is still a lack of knowledge on how culture can influence IT governance.

1. Introduction

A survey done by Information Systems and Audit Control Association (ISACA) in 2011 has revealed that enterprise-based IT management and IT governance is the second top important business issue [1]. IT governance is crucial for every firm that is chasing for returns from its IT investments and also in gaining competitive advantages over the other companies which do not have effective IT governance [2]. The awareness on how critical IT governance is for the organizations has made the organizations eager to gain more knowledge about achieving effective IT governance. Significant previous work done by the IT governance researchers have focused on the IT position in a firm and different frameworks of IT governance (e.g. [3]; [4]; [5]). Nevertheless, the research concerning the factors that can affect the IT governance is absent in comparison to the former mentioned fields [6]. A socio-technical perspective is taken in a research by Chong and Tan [7] in which they

examine coordinated communication, relational culture and attitudinal commitment as the factors affecting collaborative networks (more than two organizations collaborating) IT governance. Kingsford et al. [8] also point to the influence of organizational culture on the federal IT governance model in their study. These examples indicate two distinguished messages: first, a large amount of research has been done regarding the importance of IT governance and its crucial role in organizations and second, the different factors that can affect the success of IT governance are still not explored in depth.

As we have noticed, culture in different levels is one of the important factors that can influence the IT governance. We argue that national culture, organizational culture and culture in a sub-unit can play a role in achieving successful IT governance in an organization. According to Leidner and Kayworth [9] the research on culture and Information Systems can be categorized in different groups. They also claim that very little research is done in the category that they call “culture, IT management and strategy”, which includes IT governance. The review performed by Leidner and Kayworth [9] specifically points to the lack of research on the role of culture in IT governance. Brown and Grant [4] have also remarked that the assessment of the impact of the organizational culture on the organizational design and IT governance is an issue to be investigated by the researchers in the future. Additionally in a study done by Zhong et al. [10], the authors have focused on cross-cultural dimensions and they notice that there is a need to adapt the IT governance frameworks with the national culture in different countries. Moreover Zhong et al. [10, p.4] have indicated that “IT Governance is presented as a culture-free concept” which shows the missing investigation on cultural influence in IT governance studies. Nfuka and Rusu [11] have also done a research in Tanzanian public organizations. Their results assert that the national culture is affecting the corporate and IT governance. In a research by Silvius et al. [12] it is suggested that the national culture can affect the business IT alignment maturity. They apply Hofstede [13] national culture model on Luftman’s [14] business

IT alignment maturity model. After testing the theory in Netherlands and Belgium, the authors conclude that culture can affect the business IT alignment maturity and they emphasize on governance maturity as one of the components of the used model.

The gap in the research about the influence of culture on IT governance and the emerging attempt of the organizations to build up effective IT governance, are the main motivations for conducting this research. The goal of this research is to present a literature review on the existing researches that explore the influence of culture on IT governance. The focus of this research is to find out what are the influences from culture (at national, organizational or group levels) on IT governance. For this purpose we adopt the IT governance framework introduced by Van Grembergen & De Haes [15] for analyzing the research literature. This framework is selected since it is a relevant framework used by many researchers (for instance [16] and [17]) in similar studies and also practitioners because has a holistic approach to IT governance [15]. The next sections of the papers start with a brief overview of IT governance, culture and its potential influence on IT governance. Furthermore a presentation of the findings from reviewing the research literature regarding the role of culture in IT governance is categorized by using IT governance framework of Van Grembergen & De Haes [15]. Finally the conclusions and further research is presented.

1.1 What is IT governance?

IT governance is an issue that has received an increasingly attention in research and practice since mid-nineties [18]. Different researchers and practitioners have presented various definitions of IT governance based on their experience, best practices and knowledge. IT Governance Institute (ITGI) [19] defined IT governance as “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 strategies and objectives” [19, p.10]. Simonsson and Johnson [18] have done a review of 60 articles and they also propose a definition for IT governance, and according to them, “IT governance is basically about IT decision-making: The preparation for, making and implementation of decisions regarding goals, processes, people and technology on a tactical and strategic level” [18, p. 14] The authors then suggest that in order to assess the effectiveness of IT governance the above factors from their definition needs to be considered. In this paper

we have used the definition given by [2] where “*IT governance is defined as specifying the frameworks for decision rights and accountabilities to encourage desirable behavior in the use of IT*” [2, p. 2].

1.1.1. IT governance focus areas and models. There are five focus areas for IT governance that have been introduced by ITGI [19], i.e. Strategic Alignment (SA), Risk Management (RK), Resource Management (RM), Value Delivery (VD) and Performance Measurement (PM). According to Sambamurthy and Zmud [20] there is a considerable difference between organizations selected model of IT governance. The authors mentioned three primary arrangements of IT governance developed during seventies to nineties and which are centralized, decentralized and federal governance. Sambamurthy and Zmud [20] have defined these three arrangements as following:

1. In centralized IT governance the central corporate governance has all the decision rights for governing the IT functions in all over the organization.
2. In decentralized governance of IT, the units for different IT functions have the authority for making decisions for their relevant IT activities.
3. In federal mode of IT governance both the corporate IS and business units have the authority for the IT activities depending on the tasks and the projects characteristics.

In a recent study done by Urabch et al. [21], a model is presented for successful IT governance including its factors and impacts. The authors suggest seven success determinants of IT governance i.e. “comprehensibility of the regulations, the adequateness of the regulations, the persuasiveness of the communication, top management commitment, financial and human resource support, the integration of business and IT perspectives and the business orientation of the IT staff” [21, p. 7]. Moreover Urabch et al. [21] argue that these determinants contribute to the whole organization success regarding IT.

1.1.2. IT governance framework of structures, processes and relational mechanisms. According to Peterson [22] IT governance is an integration of strategies and tactics. The author suggests that IT governance can be developed through a combination of specific structures, processes and mechanisms. Van Grembergen and De Haes [15] have introduced a framework based on three necessary components of IT governance: structures, processes and relational mechanisms (Figure 1). Van Grembergen and De Haes [23] define enterprise IT governance as “an integral part of enterprise governance and addresses the definition and implementation of processes, structures, and relational mechanisms in the organization that enable both business and IT people to execute their responsibilities in support of business/IT alignment and

the creation of business value” [23, p.3]. The elements of this framework are interrelated and cannot form the IT governance separately.

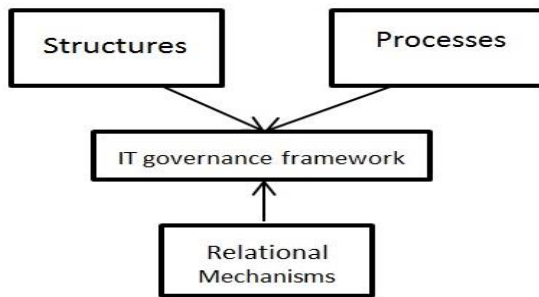


Figure 1. The necessary elements of an IT governance framework (Van Grembergen & De Haes, 2008, p.25)

Structures

In the IT Governance framework of Van Grembergen and De Haes [15], the structures consist of roles and responsibilities, IT organization structure, Chief Information Officer (CIO), IT strategy committee and IT steering committee. The authors define the IT organization structure through the three main modes of centralized, decentralized and federal IT governance. In this framework, Roles and Responsibilities are defined based on the ITGI [19] demarcation which aims to cover all the five focus areas of IT governance. It is very important that all the roles and tasks are defined and expressed unambiguously concerning the involved people in IT. The structures include a very clear presentation of the responsibilities of the executive managers. In addition the CIO needs to be aligned with Chief Executive Officer (CEO) and be accepted in the executive board at the top level management by the senior executives in this board.

Processes

The processes in the IT Governance framework (Figure 1) are more engaged with business/IT alignment as one of the focusing area in IT governance. Lederer and Sethi [24] define the strategic information systems planning (SISP) as “the process of deciding the objectives for organizational computing and identifying potential computer applications which the organization should implement” [24, p.1]. There are also some tools and frameworks used for processes such as balanced score card (BSC), Val IT, service level agreement (SLA) and COBIT.

Relational Mechanisms

The mechanisms in the IT Governance framework (Figure 1) are engaging with the understanding of the relational mechanisms between business and IT. The relational mechanisms consider the shared knowledge, a two-way communication, participation and also collaboration between business and IT departments. According to Reich and Benbasat [25] “shared domain

knowledge” is gained through the experience of IT executives in business and vice versa. This is an important issue in the understanding of business and IT from each side. Moreover “Social capital” which covers the relationships between the employees in different levels and organizational relationships and communications are important concepts embedded in the relational mechanisms in IT governance.

1.2. What is Culture?

The culture can be viewed from different perspectives and in different levels. There are also variant definitions of it among the researchers and practitioners in various fields. The culture gets formed where there are some elements shared among a group. These elements can be shared experience, shared history, common activities, common colleagues or managers and shared places. Schein [26] defines culture as “a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” [26, p.17].

1.2.1 Levels of culture. Culture can be defined based on the level of the people groups in which culture exists and also based on the level in which the culture can be visible in each group. The people groups can be in national, organizational and sub-units levels.

Hofstede [13] introduces five dimensions for characterizing and measuring the national culture including power distance, individualism/collectivism, masculinity/ femininity, uncertainty avoidance and long term orientation. According to Robbins & Judge [27] organizational culture is related with the value system shared by members of an organization. This value system contains the main characteristics in which a group of people understand each other and behave. This presents the features which differentiate one organization from other organization. In many large organizations we can find also subcultures. While the main culture represents the more important and well known values that most of the staff in the company are aware of them and have them in their minds, the subcultures represent the common understanding found in specific departments or local offices. Culture at the national level is on the other hand affecting the other two levels of culture and sometimes they are not so accurately defined. Hofstede et al. [28] has concluded that organizational culture is to a certain point determined only by national culture. Therefore the culture exists in all levels of people groups and it can be even mixed in different groups.

1.2.2. Why culture is important? The research literature has indicated that the most effective organizations have the most strong and clear culture. Schein [26] mentioned some experiences in the globally working companies that use culture for providing an environment for the employees and managers in situations such as the changing from decentralized to centralized organization or in aiming to reach higher innovation or become more flexible in respond to the changes in the business. In all of these cases culture was an important factor. Furthermore, Leidner and Keyworth [9] claim that culture in all levels can influence the people and the organizations, and can play a role in sharing information, communication and sharing the experience to prevent repeating the fatal mistakes. The cultural issues was even noticed in a recent study by De Haes et al. [29] on COBIT 5. In this research they go through the major directions of COBIT 5 and mention to “*enabling a holistic approach*” [29, p.316] as one of these directions for governing IT. They emphasize that in order to get such an approach; it is needed to consider the organizational systems and people relationships and culture. Therefore we argue that culture in different levels can affect information systems and also information technology governance performance in organizations.

2. Research method

The approach for performing the literature review is a concept centric approach in which the lens for organizing the literature is based on the concepts introduced in papers [30]. In order to find and conduct the review literature in this research, we have followed the steps defined by Creswell [31] which are:

- 1) “Identify the key terms to use in the research
- 2) Locate literature about a topic by consulting several types of material and databases.
- 3) Critically evaluate and select the literature for review
- 4) Organize the selected literature
- 5) Write a literature review that reports summaries of the literature” [31, p. 76].

Search strategy

The keywords used for searching were culture, organizational culture, IT governance, IT governance frameworks, and corporate governance in different orderings and combinations (using “AND”). The first examined sources for articles were the leading journals publications and conferences proceedings in Information Systems area (for example MISQ, JMIS, ISJ, EJIS, JSIS, JIT and ICIS, HICSS, AMCIS and ECIS). Then different databases were used like Business Source Premier, Science Direct, AIS and ACM digital library. To search for articles among these

databases we have used the defined keywords. The databases, journals and conferences selected as the sources of search were carefully extracted from the articles in this field and their references in order to prevent losing the direction of the search. All the searching was done in English language. A manual reviewing by the authors were also conducted to check the relevancy of the results.

Inclusion and exclusion criterion

From a pool of 220 articles that has been found from the databases, the duplications were deleted and after that in the next step the relevant literature needed was selected. According to Creswell [31] the relevancy of the articles can be inspected through different dimensions such as: topic, problem and question, accessibility and individual, and also site relevance. Based on the searched terms and concepts in this research, we have examined the topics, abstracts and conclusions of the articles and later on a review of the whole articles was done on the remaining ones. The inclusion criteria of the articles were done upon those who are investigating on both IT governance and culture. This strategy was used in order to prevent unmanageable number of literature that has a low relevancy to the topic. Figure 2 shows the process steps of selecting the articles from research literature in this research.

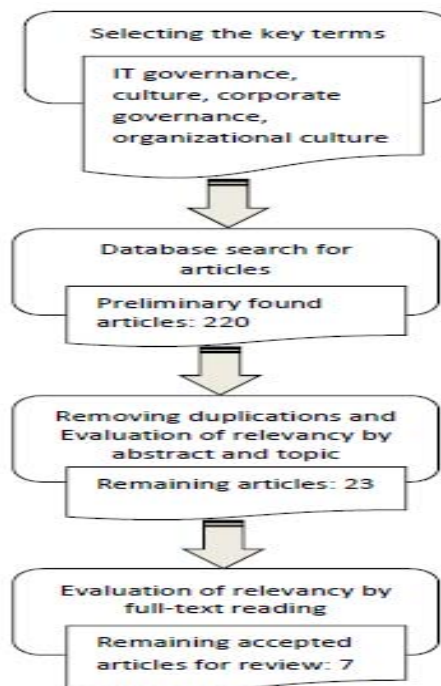


Figure 2- Process of selecting the articles from research literature

Finally, only 7 articles were selected from research literature on culture and IT governance. The articles

are not confined to a specific geographical region and they are not limited to a specific sample of study (for instance a specific industry or organization). The common point between all of articles is the existence of the culture concept and on the other side they are focused in one or more aspects of IT governance.

4. Results from the literature review

The findings from the literature revealing the influence of culture on IT governance are categorized using the IT governance framework consisting of structures, processes and relational mechanisms introduced by Van Grembergen and De Haes [15]. This is done by looking for relevancy between what the literature suggest that the culture has affected the components of the IT governance framework and matching it with one of these components.

4.1. Culture influence on IT governance structures

Zhong et al. [10] indicates that in Chinese culture the people respect the individuals more than the law, therefore the decision making is very centralized and some individuals can influence the decisions and steering committees job. This can facilitate the acceptance of the roles and responsibilities assigned to each IT employee. The accurate timing is mentioned as a cultural issue which is counted as more serious in Western culture. They also have the culture of “*individualism collectivism*” in which the shared goals and values of an individual are based on his/her inner social group [10]. Through this culture, employees see the power more on the person than the roles and structures. The culture through which the employees are resistance to sudden changes and accepting new technologies makes them slow and not successful in using standardized methods of monitoring and controlling. Janssen et al [16] have studied IT governance in “semi-state companies” (*companies that are mostly or fully owned by the state*) in Latin America. From their study it was observed that they had “closed culture”. *The closed culture is defines as the culture of having slow and bureaucratic decision making structures* [16]. In such organizations, they also report to be complicated structures with the missing role of business unit in the IT governance models.

4.2. Culture influence on IT governance processes

In the study by Zhong et al. [10], they claim that the hierarchical culture in China helps to integrate and

apply the IT related processes. The authors do not recommend the hybrid decision making structure since they believe it is not aligned with the hierarchical social norms. In Chinese culture people are not so careful about certain roles and planned models which affect negatively how they perform the IT governance process models. It has also cultural roots that there is not distinguished systematic way of data collection, documentation and structural data analysis. This causes them to have a hard and time consuming job for monitoring, modifying or decision making based on the processes done. The individualism collectivism culture in China also affects the formal processes and the group works. The Chinese are also resistance to sudden changes and this decreases the degree to which they can accept new formal standards and documentation processes [10]. Janssen et al. [16] claim that the organizations with the culture of focusing on results and collectivism and also less regulated are willing to have simple decision making processes. These organizations also are likely to have more participation from business in IT and achieve a stronger alignment of these two with each other. A study done by Nugroho and Surendro [32] shows that in the company they studied, the organizational culture is affecting the IT governance and especially the delivery and support domain of the COBIT 4.1. According to the authors, the main existing form of organizational culture in the under studied firm is the *clan culture which they define as “a friendly workplace where people share between them, like a family”* [32, p.4]. In this organization with such clan culture, the leaders act as parents. Also loyalty, team work, long term benefit and commitment are the strongest values. Based on this study, the commitment of the leaders, clear definition of the mission, vision and strategies by them and the culture of loyalty to the upper level managers support the organization for IT governance and data management.

Finally, Satidularn et al. [17] consider the national culture and have mentioned that the employees in a Thai organization they studied are very resistant to change. This influences the way the employees pay attention to best practices and follow the planned processes of IT governance.

4.3. Culture influence on IT governance relational mechanisms

The influence of culture on relational mechanisms can be firstly discussed with regard to the influence of national culture capabilities on the firm specific capabilities. According to Zhong et al. [33] the national culture dimensions are involved in different levels of social coordination. It is also important that for a

specific firm, in which country the integration mechanisms are developed and in which country they are deployed. The formalized methodologies may not be effective because of the unpredictability resulted from environment dynamics. In the cultures with low uncertainty avoidance [13] there are more problems in using the formalized and structured mechanisms.

In Chinese culture the information is considered as a confidential and personal benefit [10], so it is not shared eagerly. The dialogue, communication and participation are reduced among the stakeholders because of this cultural issue and this fact hinders the relational capabilities and makes them less functional. The Chinese culture is communicating based both on context and content. This makes their relation with stakeholders more clear, flexible and longtime lasting. Based on Zhong et al. [10] the “individualism collectivism” culture in China may have both positive and negative impact on relational mechanisms based on inner circles and group members the employees are located in. Zhong et al. [10] also define the “*harmony maintenance culture*” in China as the people tendency to respect the status and stay passive in sudden changes. They believe that this culture inspires the people to have more negotiation and in this way it has a positive effect on their relational capabilities [10].

According to Janssen et al. [16], the individualistic culture instead of appreciating the team work in some organizations, affects the relational mechanisms in IT governance. Based on this culture the IT people do not tend to share ideas and interact with each other and this also makes the decision making difficult for the firm.

According to Ali et al. [34], the IT leaders’ awareness of ethics and culture of compliance is critically affecting the employees and the organizational culture. They conclude that this has a positive effect on the IT governance of the companies. As the second factor affecting the mechanisms, they remark the corporate communication systems and its influence on the ethics in IT. The authors indicate that the culture of compliance encourages the employees to report violation which helps the decision making and also they get more committed to the company that increases their loyalty. Willson and Pollard [6] use the term “organizational nature” including key characteristics of organization, attractive employer and store culture (referring to culture of people working in a specific unit) instead of “organizational culture” in their study. They believe in this way a broader context is covered related to the organization they have studied. The organization nature in this case creates positive environment and employee’s loyalty and perception of the company as a good employer and it facilitates the IT governance relational mechanisms. It is also mentioned that the diverse geographical structure of

the projects, difficulties in collaboration among employees in different teams and low communication between them as the key characteristics of the organization, which influence the relational mechanisms [6]. In the research by Satidularn et al. [17] it is revealed that in the organization they studied, there was less power distance and there were more common values among the employees due to their “brotherhood” management style which is rooted in their culture. This cultural status “facilitates the ITG communication between subordinates” [17, p.11] which is part of the relational mechanisms of IT governance.

4.4. Summary

The literature review has collected the evidence that culture does have influence on IT governance. Table 1 presents the summary of reviewed articles and the points showing the influence of culture on IT governance structures, processes and mechanisms). Organizational and national level cultures have been studied by different authors using different approaches and models such as Hofstede [13] and Organizational Culture Assessment Instrument (OCAI) [35]. The reviewed literature also investigated on some aspects of IT governance such as IT governance integration capabilities, IT governance structure, processes and relational mechanisms, COBIT 4.1 and IT governance facets. The classification of the literature regarding culture influence on IT governance was done through the lens of the three components of IT governance framework, i.e. structures, processes and relational mechanisms in this research. Among the seven studies, six of them indicated some cultural influence on relational mechanisms, four of them examined the cultural influence on IT governance processes and two of them revealed some cultural influences on IT governance structures. Of course there were some of the articles for instancing Zhong et al. [10] that covered more than one of the IT governance components.

Table 1. Literature overview of culture influence on IT governance

Author	Culture level/focus, model or instrument used	Research focus on ITG	Culture influence on ITG framework components		
			Structures	Processes	Relational mechanisms
Ali et al. [34]	Organizational culture/ Ethic or culture of compliance	IT strategy committee, IT steering committee, corporate communication systems & top management involvement in IT	N/A	N/A	- Culture of compliance or ethics increases the loyalty, commitment and communication.
Willson & Pollard [6]	Organizational culture/ Key characteristics, attractive employer and store culture	Six facets of ITG; Also elements of ITG including structures, processes and control	N/A	N/A	- Creating positive environment influences the employees loyalty and their two-way communication - Different geographical project teams influence the collaboration between stakeholders
Nugroho et al [32]	Organizational culture/ OCAI	COBIT 4.1	N/A	- Clan culture influences the delivery and support on COBIT 4.1.	N/A
Satidularn et al.[17]	Organizational culture/ Hofstede model (1995)	IT governance effectiveness in terms of structures, processes and relational mechanisms	N/A	- Resistance to change influence the degree of attention to best practices and processes.	- Less power distance influences the communication between employees in different levels.
Zhong et al.[10]	National culture/ Hofstede model (2001)	ITG integration mechanism including structural, functional and social	N/A	N/A	- National culture capabilities influence different levels of social coordination in relational mechanisms.

Table 1. Literature overview of culture influence on IT governance (continued)

Author	Culture level/focus, model or instrument used	Research focus on ITG	Culture influence on ITG framework components		
			Structures	Processes	Relational mechanisms
Zhong et al [33]	National culture/ Hofstede model (2001)	IT governance capabilities including structural, process and relational capabilities	<p>-National culture phenomena of respecting individuals more than law and structures influences the decisions and steering committee job.</p> <p>-The culture of not being serious for accurate timing influences the responsibilities.</p> <p>-Individualism collectivism culture influences the roles.</p> <p>-Staff resistance to change and new technologies makes them slow in using new monitoring and controlling systems.</p>	<p>-Hierarchical culture helps in applying IT processes</p> <p>-The culture of not being serious in documentation and following the roles influences how they follow the planned processes.</p> <p>-Individualism -collectivism culture influences the group work regarding IT processes.</p> <p>-Staff resistance to change and new technologies influences their acceptance for new standard processes.</p>	<p>-The culture of not sharing information and considering it as personal benefit influences the communication and relationships.</p> <p>-Culture of communicating based on context and content influences the relationship with stakeholders.</p> <p>-Individualism collectivism culture influences the inner relationships of the groups.</p> <p>-Harmony maintenance culture influences the level of negotiations between people.</p>
Janssen et al.[16]	Organizational culture/ Hofstede model (2001)	IT governance structures, processes and relational mechanisms	<p>-Semi-state organizations having closed culture influence the decision making structures.</p>	<p>-Collectivism culture influences the alignment of IT and business with each other and decision processes.</p>	<p>-Individualistic culture Influences the knowledge sharing and communication.</p>

5. Conclusions and future research

This study has investigated the culture influence on IT governance by conducting a literature review. The results have explicitly demonstrated that culture has various impacts on IT governance. The cultural issues such as employees timing accuracy, loyalty, change resistance, individualism and friendly environment turned to be influential on the IT governance components including structures, processes and relational mechanisms. Considering the articles directly focusing on the cultural influence on IT governance among a pool of papers can be counted as the limitation of this research. However, this paper contributes to IT governance research by providing an evidence of the importance of cultural influence on IT governance. Awareness of the importance of culture on IT governance supports reaching effective IT governance in organizations. Therefore we conclude that although culture play an important role in IT governance there is a lack of research on how the culture can influence IT governance and particularly on its structures and processes areas. The absence of cultural elements was observed in most of the IT governance practices and approaches. The potential future research areas can be based on diverse questions arising after this study such as: Which areas of IT governance can be influenced by culture? How is the effect of culture in different countries on IT governance? And what can be changed in models of IT governance based on the cultural findings affecting it. Each of these questions can be addressed and tested in different organizations and countries. Finally we believe that there can be in depth research and investigations on how culture can impact achieving effective IT governance implementation in organizations.

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