The Role of Culture in IT Governance Five Focus Areas: A Literature Review

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ABSTRACT

Information technology governance (ITG) is one of the top challenges of managers today and culture in different level can have an important role while implementing IT governance. This is a new and significant issue, which has not been investigated deeply. This paper sets out to provide a systematic review of the literature, focusing on the role of culture in IT governance. The literature review findings are categorized through the lens of IT governance's five focus areas which are IT strategic alignment, IT value delivery, Risk management, IT resource management and Performance measurement. This study contributes to the field of IT governance by reviewing and discussing the existing literature on the role of culture on IT governance. This literature review resulted that there are few research studies in this topic and many of the IT governance focus areas are not covered regarding the role of culture in these IT governance areas.

Keywords: Culture, IT Governance, IT Value Delivery, Performance Measurement, Resource Management, Risk Management, Strategic Alignment

INTRODUCTION

In the current competitive business environment, the enterprises are greatly depending on the use of IT to create value for their business (Debreceny & Gray, 2013; De Haes et al., 2016). Information technology is potentially the key driver of economic capital in the 21st century and it is even changing the industries (Benbasat & Zmud, 2003; ITGI, 2003; Crowston & Myers, 2004; Sueyoshi & Goto, 2013; Workman, 2014; Venkatesh et al., 2016). Hence, IT governance, which deals with decision rights and responsibilities of people working with IT for gaining value from IT (Weill & Ross, 2004), is one of managers' top concerns (ITGI, 2003; ISACA, 2011). IT governance is strongly linked with the corporate governance. Corporate governance defines the division of power and wealth in the corporation. Corporate governance is influenced by culture (Licht et al., 2005) and consequently culture is a very important influencing issue in IT governance as well. There are many different uses of the term "culture," such as shared forms, ideas, symbols, values, ideologies, rules and collective norms and patterns, and, of course culture is not unique in this way and many definitions and aspects of it exist (Alvesson, 2012).

In fact, culture is blamed in many cases when IT governance fails to deliver value to the business (Kingsford et al., 2003). Culture should be considered with its both possible inhibiting and supporting effects on IT governance implementation (Ke & Wei, 2007). Still, there is a lack of research concerning the link between culture and IT governance. Therefore, this study aims at performing a systematic literature review on the relationship between culture and IT governance and to providing a future research agenda.

The role of IT within organizations is changing from an operational role to a more strategic one and this consequently stresses the need to make sure that IT is properly governed (Lunardi et al., 2013; Bergeron et al., 2015). IT governance is involved in the relationship between the ownership and control structures of the firm and IT performance (Ferguson et al., 2013). Successful implementation of ITG is a challenge for managers and yet we know very little about that (Debreceny, 2013, Jairak et al., 2015). It has also been suggested that culture plays an important role in the implementation and use of IT in organizations (Walsham, 2002). Culture has been often recognized as one of the impact factors when failures happen in IT implementation in organizations. With its potential constructive or catastrophic effect on organizations' management and operations culture should be reflected by managers while implementing IT governance (Dittes &Smolnik, 2016).

The literature on management shows that national and organizational cultures can affect companies' performance and there is a need for greater number of studies on the interdisciplinary fields that bridge IT and organizational studies and identify how they interact with each other. In the current dynamic work environment, both technological and institutional contexts should be considered to understand how organizations are operating (Orlikowski & Barley, 2001; Kingsford et al, 2003; Leidner & Kayworth, 2006; Kappos & Rivard, 2008, Orlikowski et al., 2016). Leidner and Kayworth (2006) believe that culture is a crucial dynamic, which explains the interaction among the social groups and IT in an organization. Claver et al. (2001) also states that the improvements in the organizational culture are required when organization are seeking to boost their information systems efficiency. Organizations need to match their technology with their organizational environment to achieve the optimized value from their IT (Hester 2013).

Additionally, when implementing IT governance, it is very challenging to respond to different technical, environmental and business changes. The speed and direction of change reaction in organizations influence the way a firm creates competitive advantage and deals with the new business environment challenges such as control and efficiency (Ventris, 2004; Harison and Boonstra, 2009; Chen et al., 2014). Laudon and Laudon (2007) argue that technology, task, structure and people are linked with each other and therefore changes in one of them influence the other three. The new technology used successfully by one company, may face failure in another due to organizational resistance to it and to differences in organizational cultures. However, the relationship between IS and culture remains a challenging topic for researchers and practitioners (Kappos & Rivard, 2008). It is considered that the gap spotting is a first step towards a legitimate and fruitful approach to motivate the undertaking of a future theory development effort (Rivard, 2014) and this is the motivation for this literature review.

The aim of this study is to conduct a systematic literature review (Webster & Watson, 2002) of the relationship between culture and IT governance. Using the lens of IT governance five-focus

areas framework, this study seeks to find traces of culture in each of these areas of IT governance in previous research.

The rest of the paper is structured as follows. Section two presents the theoretical background of the relevant literature on IT governance and culture. Section three discusses the research methodology followed by section four that presents the outcomes from the literature review. The last two sections present Discussions, Conclusions and Future research.

THEORETICAL BACKGROUND

An Overview of Culture

National Culture

According to Hofstede (1984), the culture of a society called the "national culture" is defined as the shared values, understandings, assumptions and goals that exist in the current society and have been learnt from earlier generations. This culture gives directions to the way of living, communication, life and work standards and expectations of the person (Dressler, 1976).

Rauch et al. (2013) indicates that different national cultural contexts are related to various issues, even to the degree of innovation and growth in firms. According to Deresky (2011), it is a critical skill for managers of organizations to have an understanding of the national culture of the environment in which they are running their business, especially when organizations operate globally. Different researchers have developed various frameworks for studying and understanding national culture and it has been assessed by both values and practices (i.e. Hofstede, 2001; Javidan & House, 2001; Gupta et al., 2002).

Organizational Culture

Organizational culture is the object of many studies in relation to its definition, its effects on organizations' success or failure, and its formation and influential factors (Schein, 2009; Alvesson, 2012). Organizational culture is expressed from two aspects: 1) practices and values and 2) behavior and beliefs. Organizational culture can be defined as the specific ways that an organization behaves over a period of time (Kostava, 1999). The organization's work practices define the organization's knowledge and competence, while organizational values and norms weave a belief system (organizational culture) by which organizational members make sense of their actions (Vieru & Rivard, 2014).

Cameron and Quinn (2011) have developed a strategy for measuring organizational culture by adapting both quantitative and qualitative approaches. They propose the Organizational Culture Assessment Instrument (OCAI), a six-dimensional model of organizational culture based on the Competing Values Framework previously introduced by Quinn and Rohrbaugh (1983). Another worth noting model is the "X Model of Organization Culture" developed by Smit et al. (2008). This model categorizes the organizational culture elements into five clusters named: leadership, strategy, adaptability, coordination and relationship. Choo (2013) proposes a typology called "information culture" and counts it as analogous with organizational culture. Information culture

is similar to organizational culture but with a distinctive focus on the cultural norms, values and behaviors regarding the way information is perceived, used and managed in an organization. Additionally, according to Kappos and Rivard (2008) there may even be subcultures within an organization related to the norms and values shared among its subunits. Guzman and Stanton (2009) also note the important role of cultural fit to subunits in the organizations. They suggest that the cultural fit of the employees working with IT occupations influences the IT performance.

An Overview of IT Governance

IT Governance Definition

According to Wilkin and Chenhall (2010) and Zarvić et al. (2012), the term "IT governance" appeared for the first time in research during the 1990s. Loh and Venkatraman's (1992) work is one of the first studies to use the concept of IT governance, pointing out that IT governance is starting to be acknowledged as a significant part of IT strategy.

IT governance is strongly linked with the corporate governance (Licht et al., 2005). Van Grembergen and De Haes (2009) also state that "enterprise governance of IT governance is an integral part of corporate governance" (p. 4). Corporate governance is defined as the division of power and wealth in the corporation and the system through which the organization is controlled and directed (Van Grembergen & De Haes, 2009). The link between the corporate governance and IT governance was found to be that important that the International Organization for Standardization (ISO) has created a specific standard (ISO/IEC 38500:2008) for corporate governance of IT. It defines the guidelines for preferred behavior in corporations to guide the IT decision making.

Van Grembergen (2007) defines IT governance as "the organizational capacity exercised by the board, executive management and IT management to control the formulation and implementation of IT strategy and in this way, ensure the fusion of business and IT" (p.1).

This study adopts Weill and Ross' (2004) definition of IT governance which represents the ensemble of decision rights and responsibilities of organization members implementing and using IT for gaining value from IT.

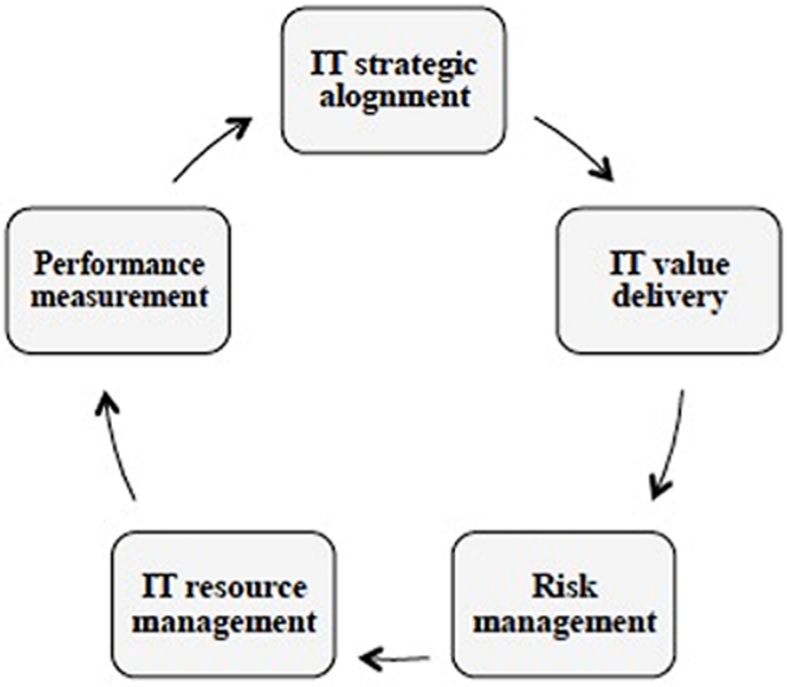
IT Governance Focus Areas

There are five focus areas for IT governance identified by the IT Governance Institute (ITGI, 2003): Strategic Alignment (SA), Resource Management (RM), Performance Measurement (PM), Value Delivery (VD) and Risk Management (RK). The five focus areas of IT governance are based on the stakeholders' values. The first three (strategic alignment, resource management and performance measurement) are considered as drivers and the other two (value delivery and risk management) are outcomes. Most of the IT governance models, frameworks, standards and structures consider these five focus areas during IT implementation (ITGI, 2003) and this is the reason for this research to choose this practical approach of IT governance in reviewing and categorizing the literature.

The ITGI (2003) defines each criterion as follows:

1. **IT Strategic Alignment:** Ensures a linkage between business and IT plans, defines, maintains and validates IT value propositions and aligns IT and enterprise operations. The main concern relates to the linkage of enterprise business and IT plans with operations.
2. **IT Value Delivery:** Deals with the execution of the value propositions through the delivery cycle, makes certain that IT delivers the promised benefits vs. the strategy. The main concern is optimizing costs and proving the intrinsic value of IT throughout the delivery cycle.
3. **Risk Management:** Ensures risk awareness by senior officers in the organization, a clear transparency and understanding of the organization's desire for significant risk and compliance requirements and embedding of risk management responsibilities in the organization. The main concern is to do with embedding accountability to mitigate significant risks.
4. **IT Resource Management:** Ensures optimal investment and proper management of critical IT resources: applications, information, infrastructure and people. The main concern regarding optimizing knowledge and infrastructure. The IT resource management area overlays all the other four areas.
5. **Performance Measurement:** Tracks and monitors implementation of strategies and projects. This also applies to the use of resources, performance of processes and delivery of services. An example is the use of a Balanced Score Card (BSC), which translates strategies into action for achieving goals that are measurable beyond conventional accounting. Key issues relate to setting and monitoring strategies and services (Figure 1).

Figure 1. Five Focus Areas of IT Governance (Adapted from ITGI, 2003)



IT governance is a continuous life cycle that can be entered at any point. Usually the organizations start with the strategic alignment and after that they start the implementation and then delivering value from IT. The risks should be identified and addressed, the performance needs to be measured, and the strategy should be monitored regularly. ITGI (2003) states that IT governance does not occur in an isolated place and it is influenced by the environment that it is taking place in and this environment is at the same time influenced by some factors such as: "stakeholder values; the mission, vision and values of the enterprise; the community and company ethics and culture; applicable laws, regulations and policies and industry practices" (p. 21). This highlights the significant role of environmental factors such as culture in the focus areas of IT governance.

RESEARCH METHODOLOGY

To conduct this literature review we followed the following steps: (1) identified keywords; (2) found the literature examining the topic; (3) selected and filtered the relevant studies; (4) organized the findings; and (5) summarized the findings from literature and categorized them (Creswell, 2011). The six-stage technique suggested by Punch (2014) was used to search for pertinent articles:

- 1. Using Boolean logic for key terms
- 2. Using phrase searching
- 3. Using proximity operators
- 4. Using truncates and wildcards
- 5. Determining database fields
- 6. Limiting searches

In order to prevent having an unmanageable number of articles with limited value, we decided to bind the sample articles to those significantly investigating both culture and IT governance (any aspect of five focus areas of IT governance). The concept of IT governance has received more attention from researchers and practitioners after 2000 and particularly the research literature in this topic in relation with culture is very recent. Therefore, we have considered the research literature published between years 2000 and 2016 for this research. We have focused to find the studies that have the culture and IT governance relationship, role or influence as their significant research question and results. Using the above strategy, the literature search was first conducted by accessing the databases of Business Source Premier, Science Direct, IEEE Explore, AIS and ACM digital library. Then a similar search was done in the leading journal volumes such as MISQ, MISQE, IJITBAG and IJIS and related conference proceedings, such as ICIS, HICSS and AMCIS. Duplications were found and removed.

Based on a search for combinations of keywords such as "culture", "IT governance", "IT strategic alignment", "IT value delivery", "IT risk management", "IT resource management" and "IT performance", we initially found 167 articles in culture and ITG (15 in culture and SA, 70 in culture and RM, 4 in culture and PM, 20 in culture and VD and 58 in RK). To be included in the review, an article had to meet two criteria. First, culture had to be the significant focus of the study and part of hypotheses, theoretical lens, findings and conclusions. Second, IT governance (in one or more of its five focus areas) had to be another topic examined by the article and it had

to be in a relationship with one of the concepts related to culture. The articles in which culture was only briefly mentioned, or that were not focusing on IT governance were excluded.

Considering the above criteria, the initial number of articles found were refined by reading their abstract first and if needed, their results, methodologies and eventually the full text. This process resulted in a sample of 15 articles that were reviewed to determine their methodological approach, type of culture and levels (national, organizational or subunit), area of IT governance, and key findings. We used Webster and Watson's (2002) concept-centric approach for writing the literature review. Figure 2 illustrates the analytical tool that this study used to seek evidence of cultural impacts on IT governance in the extant literature.

Figure 2. Theoretical Approach on the Role of Culture in IT Governance Five Focus Areas

LITERATURE REVIEW OUTCOMES

A Taxonomy of the Cultural Concepts and Terms Used by the Reviewed Papers

The literature review was conducted using the lens of five focus areas of IT governance for categorizing the cultural impacts on each of them. A taxonomy of the cultural concepts and terms was defined and used to present the cultural issues in the selected literature (Table 1). This taxonomy contains the classification of cultural values defined by various authors and specifies the reference for those concepts and their cultural level (organizational/national). After reviewing the literature, a concept matrix was provided to represent the findings of each article related to each of the five focus areas (Table 2). The concept matrix as the result of this literature review summarizes the information on each article, including its author(s), studied culture level and methods and findings, which are clustered through the five focus areas of IT governance.

Table 1. A Taxonomy of Cultural Concepts and Terms Used in the Reviewed Papers

Taxonomy of cultural concepts and terms used in the reviewed papers				
Cultural value-dimension	Reference	Level of analysis	Description of values	Reviewed Papers
Bases of truth and rationality	Detert et al., 2000	Organizational	Determines the degree to which the employees believe something is true or not and how they find it in an organization.	Rowlands et al., 2015
Nature of time	Detert et al., 2000	Organizational	The concept of time is dealing with the organization long- term planning, strategic planning and goal settings.	Rowlands et al., 2015
Motivation	Detert et al., 2000	Organizational	Motivation defines what motivates the employees in an organization.	Rowlands et al., 2015
Orientation to change	Detert et al., 2000	Organizational	The degree to which the individuals in an organization are open to change or take risks which is linked with innovation.	Rowlands et al., 2015
Orientation to work	Detert et al., 2000	Organizational	The certainty of work in human life and the balance between work as a production activity and as a social activity.	Rowlands et al., 2015
Isolation versus collaboration	Detert et al. 2000	Organizational	Deals with how employees work, alone or collaboratively.	Rowlands et al., 2015
Control, coordination, responsibility	Detert et al., 2000	Organizational	The degree to which control is concentrated or shared in an organization.	Rowlands et al., 2015
Orientation and focus	Detert et al., 2000	Organizational	The nature of the relationship between organization and its environment. The organization may have internal or external orientation in relation with its environment.	Rowlands et al., 2015
Institutional collectivism	House et al., 2004	Organizational	Institutional collectivism has been defined as the extent to which organizations are perceived to encourage and reward collective distribution of resources and collective action	Gu et al., 2014

Taxonomy of cultural concepts and terms used in the reviewed papers				
Cultural value-dimension	Reference	Level of analysis	Description of values	Reviewed Papers
Positive work environment	Howell and Shea, 2001	Organizational	Project champions in product development projects can add to the creation of a positive work environment	Gu et al., 2014
Leadership risk tolerance	Thamhain, 2004	Organizational	Leadership risk tolerance can be defined as the way management communicates the organization's tolerance to accept risk taking in projects	Gu et al., 2014
Results orientation	Greaver, 1998	Organizational	Focusing efforts on the results instead of the activities. In this way, the customer and the supplier should have a common purpose	Gu et al., 2014
Innovation and risk taking	Robbins et al., 2009	Organizational	The degree to which employees are encouraged to be innovative and take risks	Erasmus et al., 2012
Attention to detail	Robbins et al., 2009	Organizational	The degree to which employees are expected to exhibit precision, analysis and attention to detail.	Erasmus et al., 2012
Outcome orientation	Robbins et al., 2009	Organizational	The degree to which management focuses on results or outcomes rather than the techniques and processes used to achieve these outcomes.	Erasmus et al., 2012
People orientation	Robbins et al., 2009	Organizational	The degree to which management decisions take into consideration the effect of outcomes on people within the organization	Erasmus et al., 2012
Team orientation	Robbins et al., 2009	Organizational	The degree to which work activities are organized around teams rather than individuals	Erasmus et al., 2012
Aggressiveness	Robbins et al., 2009	Organizational	The degree to which employees are aggressive and competitive rather than easy-going	Erasmus et al., 2012
Stability	Robbins et al., 2009	Organizational	The degree to which organizational activities	Erasmus et al., 2012

Taxonomy of cultural concepts and terms used in the reviewed papers				
Cultural value-dimension	Reference	Level of analysis	Description of values	Reviewed Papers
			emphasize maintaining the status quo rather than growth	
Leadership	Smit et al., 2008	Organizational	The degree to which leaders are able to influence the culture of the organization in order to ensure optimal service delivery/results delivery	Silvious et al., 2010; El-Mekawy et al., 2012
Strategy	Smit et al., 2008	Organizational	The degree to which the organization is clear about its strategic direction so as to ensure optimal service delivery	Silvious et al., 2010; El-Mekawy et al., 2012
Adaptability	Smit et al., 2008	Organizational	The degree to which the organization is in contact with and responds to change so as to improve service delivery	Silvious et al., 2010; El-Mekawy et al., 2012
Coordination	Smit et al., 2008	Organizational	The degree to which the internal system is horizontally and vertically aligned for optimal service delivery.	Silvious et al., 2010; El-Mekawy et al., 2012
Relationships	Smit et al., 2008	Organizational	The degree to which people in the organization work together to form strong working relationships that will ensure optimal service delivery	Silvious et al., 2010; El-Mekawy et al., 2012;
Power distance	House et al., 2001	Organizational	The degree to which members of a collective expect power to be distributed equally	El-Mekawy and Rusu, 2011
Uncertainty avoidance	House et al., 2001	Organizational	The extent to which a society, organization, or group relies on social norms, rules and procedures to alleviate unpredictability of future events	El-Mekawy and Rusu, 2011
Human orientation	House et al., 2001	Organizational	The degree to which a collective encourages and rewards individuals for their cooperation	El-Mekawy and Rusu, 2011
Institutional collectivism	House et al., 2001	Organizational	The degree to which individuals are integrated into groups within the society	El-Mekawy and Rusu, 2011

Taxonomy of cultural concepts and terms used in the reviewed papers				
Cultural value-dimension	Reference	Level of analysis	Description of values	Reviewed Papers
In-group collectivism	House et al., 2001	Organizational	The degree to which individuals have strong ties to their small immediate groups	El-Mekawy and Rusu, 2011
Assertiveness	House et al., 2001	Organizational	The degree to which individuals are assertive, dominant and demanding in their relationships	El-Mekawy and Rusu, 2011
Gender egalitarianism	House et al., 2001	Organizational	The degree to which a collective minimizes gender inequality	El-Mekawy and Rusu, 2011
Future orientation	House et al., 2001	Organizational	The extent to which a collective encourages and rewards future-oriented behaviors (delaying ratification, planning & investing in future, etc.)	El-Mekawy and Rusu, 2011
Performance orientations	House et al. 2001	Organizational	The degree to which a collective encourages and rewards group members for performance improvement and excellence	El-Mekawy and Rusu, 2011
Power Distance	Hofstede, 1980, 1983	National	The power distance index is an indication of the extent to which less powerful members of a society accept unequal distribution of power.	Janssen et al., 2013; Prinz, 2015; Satidularn et al., 2011; Silvious et al., 2009;; Zhong et al., 2012
Individualism vs. collectivism	Hofstede, 1984	National	In cultures that are considered highly individualistic, individuals are loosely tied to each other and are expected to look out for themselves and their family. In collectivist cultures, people are integrated into strongly cohesive in-groups, and group loyalty lasts a lifetime.	Janssen et al., 2013; Prinz, 2015; Satidularn et al., 2011; Silvious et al., 2009; Zhong et al., 2012
Masculinity vs. femininity	Hofstede, 1984	National	In the dichotomy masculine versus feminine, a masculine culture values assertiveness, performance and material success. In a feminine society	Janssen et al., 2013; Prinz, 2015; Satidularn et al., 2011;

Taxonomy of cultural concepts and terms used in the reviewed papers				
Cultural value-dimension	Reference	Level of analysis	Description of values	Reviewed Papers
			values like quality of life, tenderness and modesty prevail	Silvious et al., 2009; Zhong et al., 2012
Uncertainty avoidance	Hofstede, 1984	National	The uncertainty avoidance index is defined as "the extent to which the members of a culture feel threatened by uncertain or unknown situations	Janssen et al., 2013; Prinz, 2015; Satidularn et al., 2011; Silvious et al., 2009; Zhong et al., 2012;
Culture gap	Ward and Peppard, 1999	Organizational	The concept of gap used here, based on literature, refers to what is called 'culture gap' which is a variable that explains the challenges that can exist between the IT function and business activities	Almajali and Dahlin, 2010
Underlying assumptions	Schein, 2004	Organizational	Unconscious and taken-for-granted beliefs, perceptions, thoughts and feelings that members of the organization share	Xiao and Dasgupta, 2005
Espoused beliefs and values	Schein, 2004	Organizational	Espoused justifications including strategies, goals, and philosophies	Xiao and Dasgupta, 2005
Artifacts	Schein, 2004	Organizational	The visible organizational structures and processes	Xiao and Dasgupta, 2005
Stories	Johnson and Scholes, 1993;	Organizational	The stories told by members of an organization to each other, to outsiders, to new recruits and so on, embed the present in its organizational history and also flag up important events and personalities.	Cormack et al., 2001
Rituals and routines	Johnson and Scholes, 1993	Organizational	The rituals of organizational life are particular activities or special events through which the organization emphasizes what is particularly important and	Cormack et al., 2001

Taxonomy of cultural concepts and terms used in the reviewed papers				
Cultural value-dimension	Reference	Level of analysis	Description of values	Reviewed Papers
			reinforces 'the way we do things around here'	
Symbols	Johnson and Scholes, 1993	Organizational	Symbols57 such as logos, offices, cars and titles, or the type of language and terminology commonly used, become a shorthand representation of the nature of the organization	Cormack et al., 2001
Power structure	Johnson and Scholes, 1993	Organizational	Power structures are also likely to influence the key assumptions. The most powerful groupings within the organization are likely to be closely associated with the core assumptions and beliefs.	Cormack et al., 2001
Organizational structure	Johnson and Scholes, 1993	Organizational	Organizational structure is likely to reflect power and show important roles and relationships.	Cormack et al., 2001
Control systems	Johnson and Scholes, 1993	Organizational	The control systems, measurements and reward systems emphasize what is important to monitor in the organization	Cormack et al. 2001
Clan	Cameron and Quinn, 2011	Organizational	The clan culture, as assessed in the OCAI, is typified by a friendly place to work where people share a lot of themselves. It is like an extended family	Nugroho and Surendro, 2011
Hierarchy	Cameron and Quinn, 2011	Organizational	Formalized and structured place to work. Procedures govern what people do	Nugroho and Surendro, 2011
Adhocracy	Cameron and Quinn, 2011	Organizational	Is characterized by a dynamic, entrepreneurial, and creative workplace. People stick their necks out and take risks. Effective leadership is visionary, innovative, and risk-oriented.	Nugroho and Surendro, 2011

Taxonomy of cultural concepts and terms used in the reviewed papers				
Cultural value-dimension	Reference	Level of analysis	Description of values	Reviewed Papers
Market	Cameron and Quinn, 2011	Organizational	Is a results-oriented workplace. Leaders are hard-driving producers and competitors. They are tough and demanding	Nugroho and Surendro, 2011

Table 2 provides the categorization of the reviewed papers based on the studied focus area of IT governance and the level of culture used.

Table 2. Categorization of the Literature Based on Their Cultural Focus on IT Governance

Research literature overview of culture influence on the five focus areas of IT governance						
Reviewed paper (Author)	Cultural focus	IT Governance focused area				
		Value Delivery	Resource Management	Risk Management	Strategic Alignment	Performance Measurement
Prinz, 2015	National	X	X			
Rowlands et al., 2015	Organizational		X		X	
Gu et al., 2014	Organizational			X		X
Janssen et al., 2013	Organizational		X			
Zhong et al., 2012	National	X	X			X
El-Mekawy et al., 2012	Organizational				X	
Erasmus et al., 2012	Organizational				X	
El-Mekawy and Rusu, 2011	National				X	
Nugroho and Surendro, 2011	Organizational	X				X
Satidularn et al., 2011	Organizational	X				X

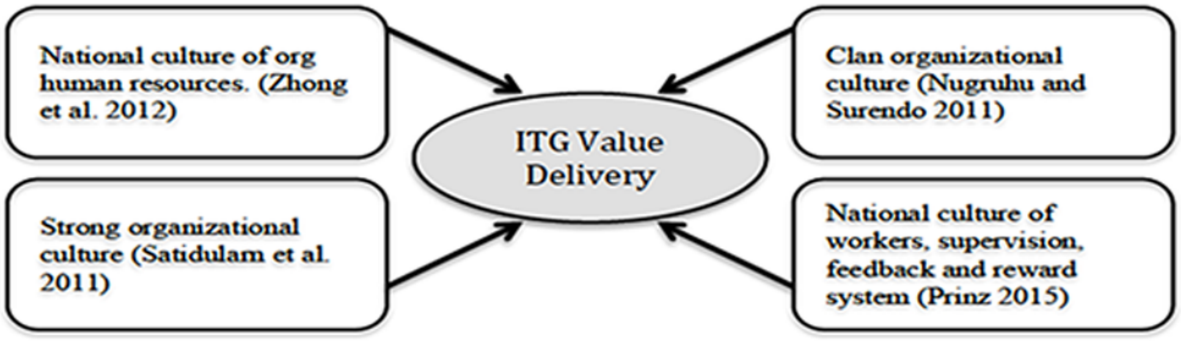
Research literature overview of culture influence on the five focus areas of IT governance						
Reviewed paper (Author)	Cultural focus	IT Governance focused area				
		Value Delivery	Resource Management	Risk Management	Strategic Alignment	Performance Measurement
Almajali and Dahlin, 2010	Organizational				X	
Silvious et al., 2010	Organizational				X	
Silvious et al., 2009	National				X	
Xiao and Dasgupta, 2005	Organizational					X
Cormack et al., 2001	Organizational				X	

As represented in Table 2, there are only 15 research studies concerning culture and IT governance. Four out of five focus areas received more attention from the research literature and there was only one paper found to investigate briefly the role of culture on the risk management area of IT governance. Risk management is one of the important aspects of ITG that can improve the ITG implementation. The reason that previous researchers have not done any investigation specifically on the role of culture on ITG risk management can be that at the current stage there is more emphasis from the practitioners' side on the role of culture in other ITG focus areas. Additionally, the researchers with a corporate governance perspective have studied risk management previously, which can be linked to risk management in IT governance. This can explain why there is not much research on culture and IT governance focus areas.

Role of Culture in IT Value Delivery

The value delivery focus area of IT governance deals with the benefits from IT through the business strategy and considers issues such as the costs of IT in the IT project cycles and how IT can provide solutions to reduce the costs and create more income for the business. Four studies were found that mentioned the role of culture in this focus area of IT governance: two with a national culture and two with an organizational culture point of view. Figure 3 summarizes the organizational or national culture factors influencing ITG value delivery mentioned by the reviewed literature.

Figure 3. Organizational Culture or National Culture Factors Influencing ITG Value Delivery

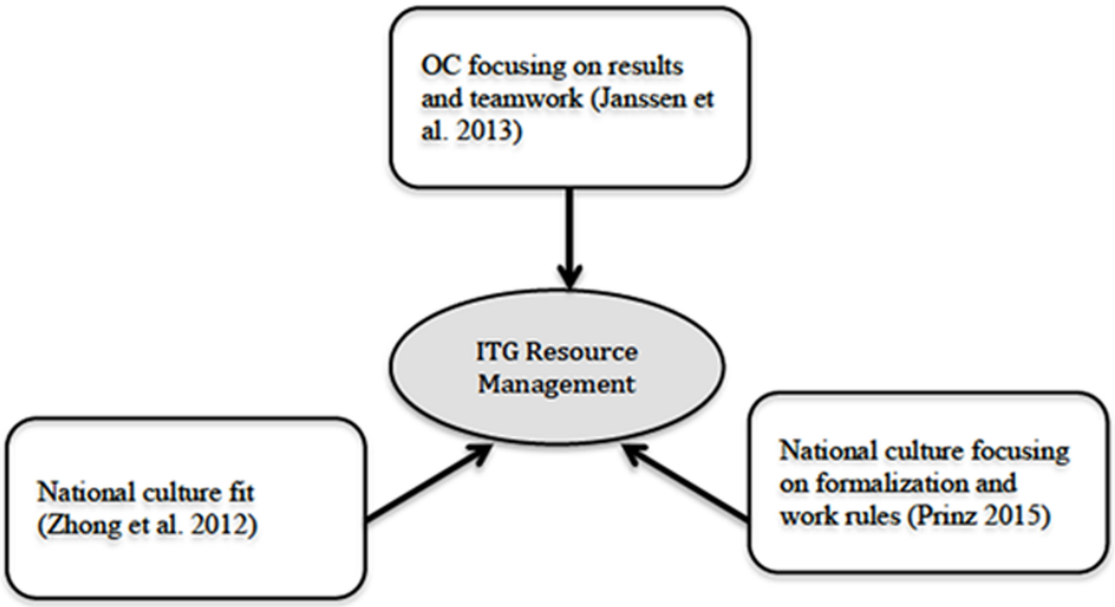


Zhong et al. (2012) use the terms IT governance performance and IT value delivery interchangeably and discuss both the value delivery and performance measurement of IT in their paper. The authors indicate that ITG represents a combination of IT resources and complementary organizational resources, such as human resources and their cultures, which makes the firm capable of IT value creation and propose that national culture provides the complex structural, functional and social coordination through which the degree of IT value delivery is moderated. In their case study, Nugroho and Surendro (2011) suggest that clan organizational culture is key to the successful implementation of IT governance polices, especially in data management. The clan organizational culture brings more commitment of leadership and makes the organization focuses more on the loyalty of the employees, a friendly workplace and teamwork. The authors found that organizational culture is influential in designing IT governance and creating value from IT. In another study, Satidularn et al. (2011), emphasize the role of organizational culture in relation to how IT governance practices and structures are designed. The authors found that a strong organizational culture with a high degree of integrity, responsibility, accountability and ethical behavior may lead the studied firm to monitor and pay attention to IT governance. Finally, Prinz (2015) suggests that the national culture related concepts of worker participation, supervision, feedback, and rewards system have an influence on IT governance value delivery.

Role of Culture in IT Resource Management

Information technology resource management deals with the management of and investment in the IT resources, including people, applications, hardware and data. Among the reviewed literature in this area, three studies focus on the role of culture in IT governance. One of them uses an organizational culture perspective and the other two adopt a national culture perspective. Figure 4 summarizes the organizational or national culture factors influencing ITG resource management mentioned by the reviewed literature.

Figure 4. Organizational or National Culture Factors Influencing ITG Resource Management



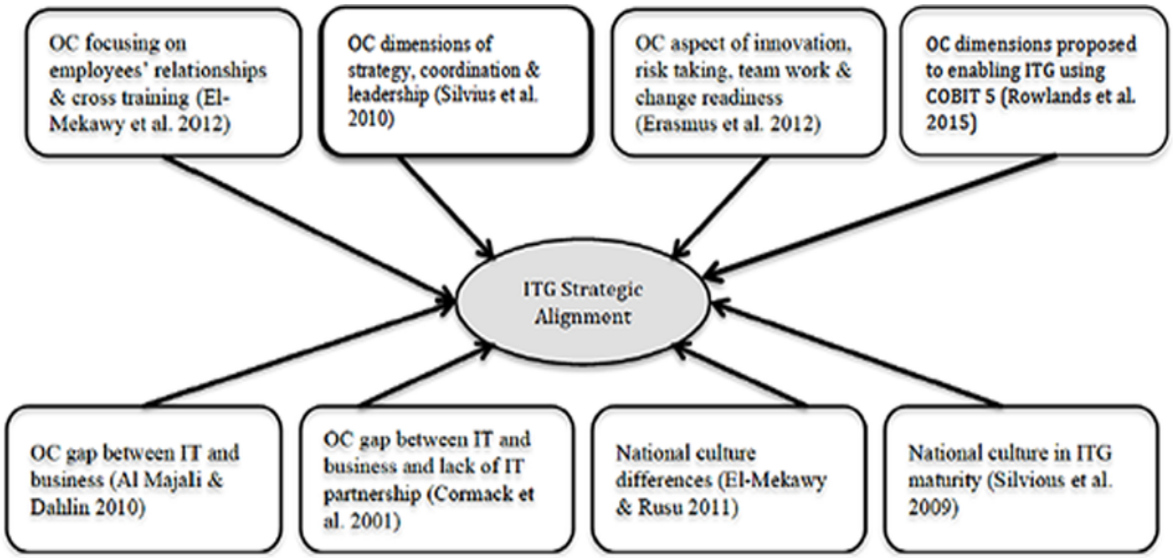
According to Janssen et al. (2013), an organization with a cultural focus on results and team work tends to implement simple structures of IT governance and simple decision-making processes, uses more efficiently their IT resources and integrates better its organizational knowledge. The authors suggest that in the organizations that value individual work, there is less teamwork, the structures are more complex and the decision-making will be more difficult, slow and bureaucratic. This type of culture causes less participation of business executives in the IT governance model, less interaction between areas and different resources and therefore less optimized IT resource management. Prinz (2015) focuses on how national culture influences IT governance. The author found that worker participation, supervision, feedback, rewards, formalization and work rules have an impact on IT governance resource planning. Zhong et al. (2012) conceptualize IT governance as a set of firms' resources and discuss IT governance integration under the national culture influences. According to them, a combination of structural, functional, social capabilities and moderation of culture fit leads to improvements in firms' specific IT resources.

Role of Culture in Strategic Alignment

The strategic alignment focus area of IT governance aims to ensure that IT and business plans are linked with each other, both sides understand each other, and business and IT operations are aligned. The review of the literature produced seven papers that had an emphasis on the role of culture on the strategic alignment area of IT governance. Among these studies, two had a national culture perspective and the rest had an organizational culture perspective. Rowlands et al. (2015) suggest that the concept of organizational culture ITG is mostly focusing on the

dimensions of COBIT 5. Figure 5 summarizes the organizational or national culture factors influencing ITG strategic alignment mentioned in the reviewed literature.

Figure 5. Organizational or National Culture Factors Influencing ITG Strategic Alignment



El-Mekawy et al. (2012) found links between organizational culture and the understanding of IT by business, understanding of business by IT, employee relationships, and cross training. Silvius et al. (2010) suggest that three dimensions of organizational culture called strategy, coordination and leadership, have a strong relationship with governance in the business IT alignment maturity. In another study Erasmus et al. (2012) found that aspects of organizational culture like innovation, risk taking, team orientation, and change readiness have a significant impact on the strategic alignment components. These aspects of organizational culture can be used to encourage more collaborative IT decision-making and improve alignment maturity. Al Majali and Dahlin (2010) assess the culture gap between IT and business strategy by analyzing the issue of strategic alignment in ITG. The authors indicate that leadership, processes, service quality, structure, values and beliefs represent the culture gap between IT and business strategy and affect the strategic alignment. Finally, Cormack et al.'s (2001) study highlights that the cultural characteristics of an IT group are associated with the tensions in the relationship between the business and the IT side. Among these cultural characteristics, the authors pinpoint to the indirect way of reporting to the CEO by the IT managers, poor communication, decentralized structure of the IT department, and system delivery processes. The authors conclude that the lack of efficient IT partnership is due to the organizational culture of the IT group. The role of national culture in strategic alignment has received attention in two studies conducted by El-Mekawy and Rusu (2011) and Silvius et al. (2009). Both studies identify the influence of culture on business IT alignment components. More specifically, Silvius et al. (2009) suggests that the difference in national cultures affect governance maturity and skills in business IT alignment.

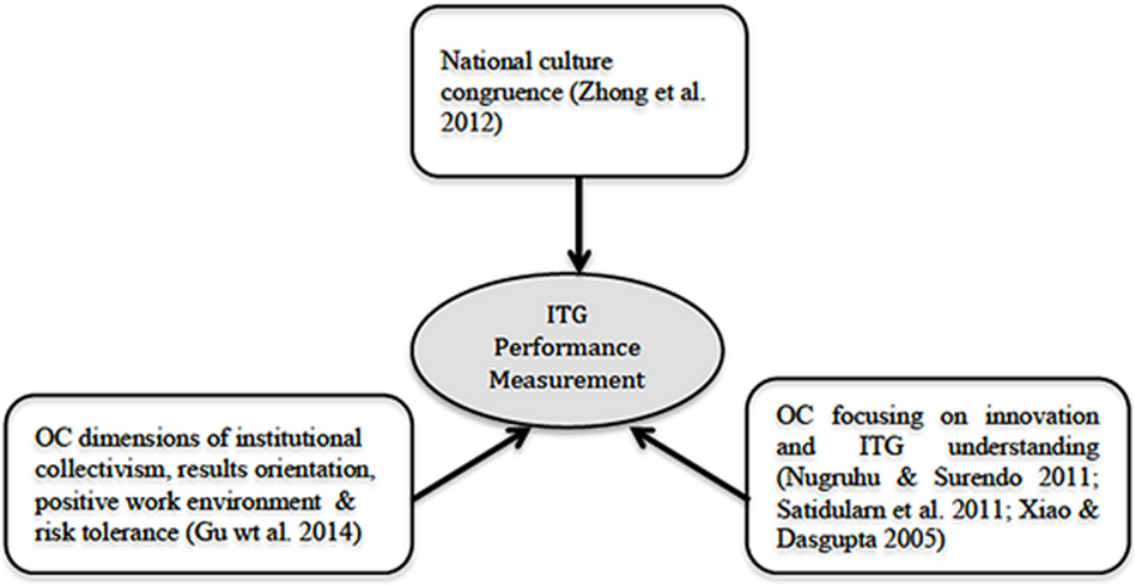
Role of Culture in IT Risk Management

Risk management focus area of IT governance deals with risk awareness by senior officers in the organization, a clear transparency and understanding of the organization's desire for significant risk and compliance requirements. We found only one study concerning the relationship between culture and risk management. The study is done by Gu et al. (2014) and it suggests that leadership risk tolerance as a cultural aspect positively influences managers with respect to IT project performance. Leadership risk tolerance is defined as the willingness of managers to take and allow risks during projects (Thamhain, 2004).

Role of Culture in Performance Measurement

The performance measurement focus area of IT governance is related to tracking and monitoring the strategies, processes, and services to assess their performance and goal achieving. Among the papers reviewed we identified five that analyze the link between culture and the performance measurement of IT governance. Four of these studies use an organizational culture perspective and one uses a national culture approach. Figure 6, summarizes the organizational or national culture factors that influence ITG performance measurement as found in reviewed literature.

Figure 6. Organizational Culture or National Culture Factors Influencing ITG Performance Measurement



Gu et al. (2014) find that organizational culture has an impact on IT performance. The authors use the four dimensions of organizational culture – institutional collectivism, results orientation, positive work environment, and leadership risk tolerance, – to provide evidence that organizational culture affects the IT project performance in many aspects, such as meeting expectations, team members' satisfaction, benefits to the organization, and improving the competitive position.

In the same vein, Nugroho and Surendro (2011), Satidularn et al. (2011), and Xiao and Dasgupta (2005) identify a link between organizational culture and IT governance performance measurement. According to these authors, it is crucial that IT managers enable an organizational culture that facilitates innovation and helps understanding the practices of IT governance. Concerning national culture, Zhong et al. (2012) suggest that the existence of congruence between national culture and IT governance mechanisms may improve the likelihood of an effective IT governance performance.

DISCUSSION

More Emphasis on Organizational Culture Than National Culture in IT Governance

The findings of our literature review revealed that previous researchers considered either one or in some cases two levels of culture: national and organizational culture. Eleven research papers used the organizational culture and four the national culture perspective. This confirms the growing importance of the role of organizational culture in IT governance in recent years in comparison to that of the national culture. However, none of the studies that focused on organizational culture has provided exact details on how different aspects of organizational culture can be used in each focus area of IT governance. This is a significant gap found in the previous literature that can be studied in detail, resulting in precise linkages between organizational culture dimensions and IT governance components.

Methods in Studying Culture Influence on IT Governance

The literature review provided insights into the variety of research methods selected by the authors to analyze the link between culture and IT governance. Table 3 summarizes the methodological approaches used in the reviewed papers.

Table 3. Methodological Approach Used in the Reviewed Papers

Methodological approach on the research literature of the role of culture on ITG					
Reviewed paper	Cultural focus	Research Method	Data collection technique	Place of research	Publisher
Prinz, 2015	National	Qualitative	Interviews/ 11 Interviews	Germany and Japan	Proceedings of AMCIS 2015
Rowlands et al., 2015	Organizational	Theoretical	-	-	Intl. Journal of IT/Business Alignment and Governance

Methodological approach on the research literature of the role of culture on ITG					
Reviewed paper	Cultural focus	Research Method	Data collection technique	Place of research	Publisher
Gu et al., 2014	Organizational	Quantitative	Survey/Panel of experts	U.S. and China	Intl. Journal of Project Management
Janssen et al., 2013	Organizational	Qualitative	Interviews	Brazil	Proceedings of HICSS 46
Zhong et al., 2012	National	Analytical framework	Literature	China	Proceedings of PACIS 2012
El-Mekawy et al., 2012	Organizational	Qualitative	Interviews (semi-structured)	Sweden	Proceedings of HICSS 45
Erasmus et al., 2012	Organizational	Qualitative	Interviews (semi-structured)/ 10 executive managers	Victoria Australia	Proceedings of PICMET 2012
El-Mekawy & Rusu, 2011	Organizational	Qualitative	Interviews	Sweden and Egypt	Proceedings of HICSS 44
Nugroho and Surendro, 2011	Organizational	Mixed methods of Qualitative and Quantitative	Survey, interviews and observations	An organization unit in Indonesian Institute of Sciences (public organization)	Proceedings of ICEEI 2011
Satidularn et al., 2011	Organizational	Qualitative	Semi-structured interviews/ 4 interviews	Large state-owned organization in Thailand	Proceedings of PACIS 2011
Al majali & Dahlin, 2010	Organizational	Qualitative	Interviews/ 4 interviews	Different Jordanian organizations	Intl. Journal of Electronic Business Management 2010
Silvious et al., 2010	Organizational	Quantitative	Questionnaires/ 23 respondents	Middle sized logistic company/Netherlands	Proceedings of AMCIS 2010
Silvious et al., 2009	National	Quantitative	Questionnaire	Belgium and Netherlands	Proceedings of HICSS 42

Methodological approach on the research literature of the role of culture on ITG					
Reviewed paper	Cultural focus	Research Method	Data collection technique	Place of research	Publisher
Xiao & Dasgupta, 2005	Organizational	Quantitative	Survey	-	Proceedings of AMCIS 2005
Cormack et al., 2001	Organizational	Qualitative	Semi-structured interviews/ 13 respondents	One public and one private Australian companies	Proceedings of ACIS 2001

The qualitative research appeared to be the preferred approach for analyzing the link between culture and IT governance. However, depending on the framework used, some researchers chose to study the relationship between either organizational culture or national culture and IT governance, while others chose to use quantitative analysis or even a combination of quantitative and qualitative analysis (for ex. Nugroho & Surendro, 2011). In terms of geographical spread, the researchers had a focus on different areas of the world, such as the U.S., China, Australia, Netherlands and Thailand. Finding studies on the role of culture in IT governance in different parts of the world confirms the importance and the actuality of this topic.

CONCLUSION

This study aimed at assessing the extant literature on the relationship between culture and IT governance through the lens of the five focus areas of IT governance: value delivery, resource management, risk management, strategic alignment and performance measurement. The findings provide evidence that research on this specific topic is scarce. There were only 15 studies that met the inclusion criteria in this literature review; these papers focus on either organizational or national culture and analyze different IT governance areas in various contexts.

The most important gap found in the extant research represents the lack of precision in terms of culture – IT governance relationship granularity. There is no clear understanding of which dimensions of culture impact IT governance and which of the five areas of IT governance are affected. Authors used a monolithic view of culture and did not analyze which parts of the organizational structure are affected by it. Finally, none of the papers covered the role of culture in all five focus areas of IT governance. Based on the increasing interest in better understanding the role of culture in IT governance and the gaps found by this literature review, we propose that one interesting future avenue of future research would be the analysis of the organizational culture impact on each of the five focus areas of the IT governance. Another topic of interest would be to assess the influence of specific dimensions of culture on each of components in ITG current frameworks and standards.

In conclusion, this literature review sheds light on the importance of cultural issues at different levels of analysis for implementing IT governance and emphasizes the need for in-depth future research in this area.

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