



IT Governance Modes Choice: An Institutional Theory Perspective

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ABSTRACT

This study explains IT Governance modes' choice in organizations using institutional theory. A conceptual framework is developed, and several propositions are presented. By adopting a non-rational perspective, a case study is conducted in the Canadian public sector. The results show that the three different IT Governance modes - centralized, decentralized, and federal - meet the requirements of process and property variables and can thus be considered legitimized institutions. Also, institutional pressures are found to play an important role in determining the chosen IT Governance mode. Coercive pressures exerted by the organization's legal environment and by standards imposed by structures on which the organization is dependent have an impact on the IT Governance mode choice. Mimetic pressures caused by peers, professional associations, or competitors also played an important role in IT Governance mode choice. Finally, normative pressures caused by inter-organizational networks and similar educational backgrounds also influenced the IT Governance choice.

1. INTRODUCTION

In the past years, the North American business environment witnessed several major financial scandals caused by corporate governance failure, with Enron among the most famous scandals. A lack of appropriate corporate Governance – processes, customs, policies, laws, and institutions – can lead to a substantial financial loss of the shareholders' wealth, a loss of jobs, and even bankruptcy. Today's Information Technologies (IT) penetrates all organizational processes by supporting organizational goals and corporate Governance. Their importance for organizations can no longer be questioned. Like corporate Governance, a lack of relevant IT Governance measures can lead to several company problems. For instance, IT-enabled business transformations have caused several disappointments for chief executives (Peterson, 2004; Wu et al., 2015). Hence, it is easy to understand why IT Governance is described as a fundamental business imperative. Today's formula is not "getting IT right," but instead placing the right people in the right places with the right responsibilities to ensure that the organization meets its goals (Wu et al., 2015).

IT Governance has been an object of significant interest for researchers in the IT field during the past decades. Several theoretical models based on various theoretical

backgrounds have been proposed and tested (Purvis, Sambamurthy, et al., 2001; Chatterjee, Grewal, et al., 2002, Wu et al., 2015, Zuo et al., 2020) in order to clarify IT Governance phenomena and to help practitioners.

IT Governance is a combination of leadership, organizational structures, and processes, delivering value from IT to the business and mitigating IT risks as its twin goals (IT-Governance Institute, 2003). More specifically, IT Governance explains who has the authority to make IT-related decisions. Several papers considered IT Governance's topic under different terminologies, such as IT strategic management, IS, or IT organization (Brown and Magill, 1994; Sambamurthy and Zmud, 1999; Gregory et al., 2018). These studies focused on the identification of elements that can provide instructions on how to organize IT Governance. Besides, IT Governance's importance is often emphasized since it has implications for IT performance, influencing the firm's performance (Weill and Olson, 1989; Weill, 2004).

This paper focuses on IT Governance modes, which are defined by Sambamurthy and Zmud (1999) as a combination of groups with authority to make decisions, and IT-related activities. According to Sambamurthy and Zmud (1999), IT Governance within a company is a result of multiple contingencies that are categorized into three

sets of forces: corporate Governance, economies of scope, and absorptive capacity.

While this categorization adds several elements to the understanding of IT Governance, it does not include non-rational elements that can shape companies' decisions. Indeed, it considers only internal pressures within the organization (Corporate Governance), economic rationale driven by efficiency (economies of scope), and the ability of organizations to implement changes in the locus of IT decisions (absorptive capacity), which are all rational elements. According to Avgerou (2000), one cannot always assume that the managers, users, and all organizational management process participants are rational actors. There has always been a certain amount of non-rationality in organizations' management, and institutional pressures could be one factor (Scott, 2001). Researchers should then integrate institutions' non-rational aspect into research models to present a richer explanation of complex phenomena. Even though various models – e.g., Purvis et al. (2001), Chatterjee et al. (2002) - have added to the understanding of IT Governance practices, the phenomenon still needs further clarification (Sambamurthy and Zmud, 2000). According to Jacobson (2009), rational theories are useful for developing conceptual models and normative suggestions. However, rational theories have less ability to account for other aspects of the IT Governance phenomenon, including the embedded social nature of Governance, the challenges associated with improving and measuring performance, and how Governance changes over time.

This study is an attempt to increase understanding of the topic of IT Governance. More specifically, it explores IT Governance from a non-rational perspective by adopting a relatively new theory in the IS field, namely the institutional theory. In recent years, several papers in the IS field have adopted the institutional theory to study IT-related phenomena such as IT acceptance and use (Teo, Wei, et al., 2003; Bozan et al., 2015,), IT innovation (Swanson and Ramiller, 2004), and IT implementation (Nicolaou, 1999). However, very few papers considered the institutional theory to study IT Governance (Jacobson, 2009). More specifically, the purpose of this paper is to attempt to find an answer to the following research questions: “Can IT Governance modes be considered as institutions?” and “How do institutional pressures (mimetic, normative, and coercive) influence the choice of IT Governance modes?” Adopting the organization - corporate, subsidiary, or single firm - as the level of analysis, key institutional pressures (DiMaggio and Powell, 1983), and the impact of each on the choice of IT Governance modes is identified and examined. A theoretical framework is proposed and a case study is conducted.

The paper is a work in progress and is organized as follows. First, IT Governance is presented, followed by a

description of institutional theory. A justification of IT Governance modes as an institution is then proposed. A theoretical framework with propositions is developed. Finally, a case study is conducted, and results are presented. The study closes with discussion and conclusions. Limitations and suggestions for future research are presented in the final paragraphs.

2. LITERATURE REVIEW

A. IT Governance

As a concept, IT Governance modes (also called structures or forms) are subject to several definitions, each emphasizing one of its various aspects (Weill, 2004). According to the IT Governance Institute (2003), “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 structure and processes that ensure that the organization’s IT sustains and extends its strategies and objectives.” IT Governance is the set of responsibilities and practices exercised by the enterprise's senior management, designed to establish and communicate strategic direction, ensure the realization of goals and objectives, mitigate risk, and verify that assigned resources are used effectively and efficiently (IT-Governance Institute, 2003).

According to Weill and Ross (2004), IT Governance specifies the decision rights and accountability framework to encourage desirable behavior in IT use. Good IT Governance harmonizes decisions about the management and use of IT with desired behaviors and business objectives (Weill and Ross, 2004).

IT Governance is a term that first came into use in the late 1990s and had since then attracted a significant amount of interest (IT-Governance Institute, 2003). However, IT Governance is not a new concept; its ramifications can be recognized in the IT research of the past several decades. For instance, as early as the 1960s, Garrity (1963) studied the implications of top management involvement for the successful use of information technology. Since that time and until the early 1990s, IT Governance's concept is used mainly implicitly in several studies (Doll, 1985; Jarvenpaa and Ives, 1991). In the early 1990s, IT Governance started to emerge in IT research as an explicit concept (Loh and Venkatraman, 1992; Henderson and Venkatraman, 1993). In recent years, authors like Caluwe and De Haes (2019) summarized the state-of-the-art of research related to IT Governance, and proposed a research agenda to cover grey areas.

There is a difference between IT Governance and IT management. According to Weill and Ross (2004), IT Governance determines who makes the decisions while management is making and implementing those decisions. IT Governance manages the technologies themselves and

the use of those technologies in organizations (Dixon and John, 1989; Brown, 1997).

According to Weill and Ross (2004), IT Governance is articulated around IT Governance modes. The chosen IT Governance mode encompasses the application of various IT Governance decisions. The following section presents various IT Governance modes identified in past research.

B. IT Governance Mode

According to Brown (1997), there is no universally best IT Governance. Sambamurthy and Zmud (1999) present the idea of spheres of key IT activities identified in the literature (Clark, Cavanaugh, et al., 1997; Cross and Earl, 1997; Weill and Broadbent, 1998) and use them in order to define IT Governance modes. According to Sambamurthy and Zmud (1999), IT activities spheres are composed of three elements: IT infrastructure, IT use, and project management. It is essential to mention that IT use in the IT Governance context is different from IT use in the IT adoption literature (Brown, 1997). IT use is a larger concept in the IT Governance context that describes several organizational components (for instance, IT implementation). Hence IT use describes individual or organizational acceptance and use of specific technologies.

According to Sambamurthy and Zmud (1999), governance modes can be organized into three main categories: centralized mode, decentralized mode, and federal mode (the latter is also called shared or hybrid mode). In the centralized governance mode, corporate IS has a locus of authority in all spheres of IT activities. In the decentralized mode, both divisional IS and line management may have the locus of authority for a specific sphere of IT activities. Finally, in the federal governance mode, corporate IS has a locus of authority on IT infrastructure, but divisional, line management, or corporate IS also have the locus of authority for IT use and project management. For Sambamurthy and Zmud (1999), different patterns of locus of authority will form different governance archetypes.

Weill and Ross (2005) extend the governance modes' repertoire presented by Sambamurthy and Zmud (1999). They classify governance modes using six archetypes: business monarchy, IT monarchy, feudal, federal, IT duopoly, and anarchy. Even if there seem to be differences between Weill and Ross's (2005) and Sambamurthy and Zmud's (1999) IT Governance modes, the two conceptualizations are fundamentally similar. Both conceptualizations describe spheres of IT activities. Also, both conceptualizations vary from highly centralized to highly decentralized.

The literature also introduces other governance modes, such as outsourcing (Loh and Venkatraman, 1992) and partnerships (Powell, 1990). Since the IT function is continually evolving, new IT Governance modes appear

from time to time. Among them, several modes are characterized by the fact that they transcend organizational frontiers and link organizations together (Agarwal and Sambamurthy, 2002). However, these "new" modes are seen as an organizing logic, related to the managerial rationale for designing and evolving specific organizational arrangements, in response to an enterprise's environmental and strategic imperatives (Sambamurthy and Zmud, 2000). Furthermore, all these modes vary from highly centralized to highly decentralized and can be classified within Sambamurthy and Zmud's (1999) three IT Governance modes. Hence, this study adopts Sambamurthy and Zmud's (1999) centralized, decentralized, and federal IT Governance modes.

In the following section, the institutional theory is introduced to point out the link between IT Governance modes and institutional pressures.

C. Institutions and Institutional Theory

According to Barley and Tolbert (1997), institutions are shared rules and typifications that identify social actors' categories and their appropriate activities or relationships. They are social structures that have attained a high degree of resilience (Scott, 2001). Institutions are composed of cultured-cognitive, normative, and regulative elements which, together with associated activities and resources, provide stability and meaning to social life (Scott, 2001).

Organizations are suspended in a web of values, norms, beliefs, and taken-for-granted assumptions (Barley and Tolbert, 1997). Managerial practices in the organization are among these elements. For a practice to be considered an institution, it must be recognized by one or several social groups (Tolbert and Zucker, 1996). According to Tolbert and Zucker (1996), to be institutionalized, a phenomenon has to be recognized as a process. There are three main process variable stages: the first is the partial acceptance stage (habitualization), the second is the diffusion stage (objectification), and the third is the saturation and total legitimacy stage (sedimentation). According to Jepperson (1991), to be institutionalized a phenomena must also meet the requirements of the property variable by being relevant to a particular analytical context.

The following section presents argumentation to demonstrate that IT Governance modes have gone through the institutionalization process and are relevant to a particular analytical context.

D. IT Governance Modes as Institutions

As explained in the previous section, IT Governance modes must be justified as process and property variables. In other words, to be considered as institutions, IT Governance modes must go through the institutionalization process in terms of **habitualization**, **objectification**, and **sedimentation**. To meet the

requirements of property variables, IT Governance modes must also meet the following qualifications: be relevant to a particular context, relative to a certain level of organization, relative to a particular dimension of a relationship, and relative to centrality.

First, **habitualization** behavior is developed in a sequential process to solve a problem (Tolbert and Zucker, 1996). In the case of IT Governance modes, the problem is to decide how IT-related rights of decision will be distributed between corporate and business unit management levels. For example, since mainframes emerged in the 1960s, the centralized IT Governance mode was a standard solution for dealing with issues related to mainframes. This centralized solution was driven by economies of scale (Brown and Magill, 1998). Then, in the 1980s, IT started to play a strategic role at the business unit level (Brown and Magill, 1998), forcing a move from the centralized IT Governance mode towards decentralized modes. However, the drive to find a balance between conflicting corporate level advantages (cost efficiency) and business unit level advantages (control of strategic resource) led to the appearance of the federal IT Governance mode in the late 1980s.

Second, the **objectification** process is achieving a social consensus about the studied phenomena (Tolbert and Zucker, 1996). As shown above, during every significant period that IT Governance has gone through, a consensus was attained, and the governance mode became a recognized practice. Therefore, we can conclude that IT Governance modes went through the institutional process in terms of objectification.

Third, the **sedimentation** process is the historical continuity of a specific structure, especially its survival across generations of organizational members. Since various IT Governance modes have been applied over several decades, and since they are part of the historical continuity of organizational structures, one can conclude that IT Governance modes have gone through the sedimentation process as defined by Tolbert and Zucker (1996).

Thus, this study led us to claim that IT Governance modes, having gone through this institutionalization process, can be declared legitimized and fully institutionalized within organizations in terms of process variables (Tolbert and Zucker, 1996). Besides, as IT Governance modes should be justified in terms of property variables to be considered institutions, the arguments presented by Jepperson (1991) are followed.

First, according to Jepperson (1991), the studied phenomena must be relative to a particular context. This is the case for IT Governance modes. They are relevant in organizations and a business context. Second, Jepperson (1991) argues that the studied phenomena must be relative to a particular organizational level. This is also the case for IT Governance modes which appear to be institutions to

individuals and groups of individuals in the organization. Third, the studied phenomena must be relative to a particular relationship dimension (Jepperson, 1991). This is the case for IT Governance modes. Within a company, IT Governance is more an institution for certain groups of interest, such as IT suppliers, than for customers. Finally, to be considered an institution, the studied phenomenon must be relative to centrality (Jepperson, 1991). As indicated, the IT Governance mode is more an institution for members of the organization than for their families. This argument leads us to claim that IT Governance modes can be declared legitimized and fully institutionalized in organizations in terms of property variables (Tolbert and Zucker, 1996). With the conditions of process variables and property variables satisfied, we may conclude that IT Governance modes can be considered institutions in the organizational context.

The following section presents the theoretical framework and propositions based on the influence of institutional pressures on IT Governance modes' choice.

3. THEORETICAL FRAMEWORK AND PROPOSITIONS

As argued in the previous section, IT Governance modes are institutions in their organizational field. Organizational fields are organizations that, in the aggregate, constitute a recognized area of institutional life (DiMaggio and Powell, 1983). For example, key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products can be considered part of the organizational field (DiMaggio and Powell, 1983).

Institutional theory (DiMaggio and Powell, 1983) posits that the organizational field exerts three kinds of pressure, making organizations resemble each other by creating an isomorphism. First, coercive pressures are exerted on organizations by other organizations upon which they are dependent. Second, normative pressures stem from professionalization, where organizations impose their conditions and methods of work. Third, mimetic pressures appear in uncertain contexts, where firms tend to model themselves after similar legitimated or successful organizations. These three pressures will cause isomorphism, a process of homogenization between organizations (DiMaggio and Powell, 1983).

According to DiMaggio and Powell (1983), predictors for isomorphic change are situated at organizational and field levels. These two prediction levels are adopted in this study to categorize factors influencing the isomorphic change of IT Governance modes. The formulated propositions to be presented later will be based on DiMaggio and Powell (1983). Figure 1 presents the developed theoretical framework.

The approach used to develop this theoretical framework was mapping two fields of literature, namely IT Governance literature and institutional theory literature. Nine propositions were developed based on this literature mapping.

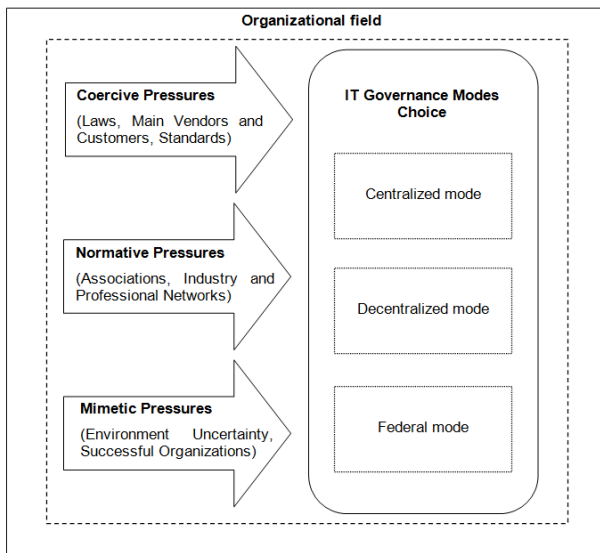


Fig 1. Theoretical Framework

A. Coercive Pressures

Coercive pressures are present through the legal environment of the organization (DiMaggio and Powell, 1983). Also, standards imposed by structures on which the organization is dependent are another element of coercive pressures (DiMaggio and Powell, 1983). DiMaggio and Powell (1983) identify coercive pressures based on the resource-dependence theory (Pfeffer and Salancik, 1978). Resource-dependence theory explains how organizations lacking necessary resources become dependent on other organizations. For instance, at the organizational level, IT outsourcing may have a great impact on the IT Governance mode. If an organization outsources its specific IT assets (Williamson, 1985), it becomes very dependent on vendors' action in terms of upgrades or development needs. These dependencies may affect internal arrangements of IT Governance modes. Internal arrangements' goals (structural and procedural) are oriented towards more effective exchange relations and a stable dependency on other organizations (Tillquist, King, et al., 2002). Changes in the IT Governance modes can be initiated by internal needs to control dependency on a vendor or external pressures from the vendor. A partnership, for example, which is a business where partners share the profits or losses, is a typical practical arrangement for integrating knowledge and authority between firms (Sambamurthy and Zmud, 1999). Partnership models can be seen as a federal IT Governance mode.

Coercive pressures are influenced by the power system (Scott, 2001). Indeed, according to Teo et al. (2003), a dominant actor may demand organizations dependent on him to deploy structures or programs that serve his interests.

On the other hand, coercive pressures may come from other organizations in the organization's field, as shown in figure 1. For example, parent companies, especially firms growing through acquisitions, put a significant amount of pressure to influence their subsidiaries to integrate their IT Governance structures (Sambamurthy and Zmud, 1999). This situation leads to isomorphism in the IT Governance structures between these different organizations.

P1 (organizational-level): The greater the dependence of an organization as an institution on another organization as an institution, the more the latter will influence the former's IT Governance mode choice.

The concepts of total insourcing, selective outsourcing, and total outsourcing are used as a taxonomy of the degree of outsourcing. According to Willcocks et al. (2006), selective outsourcing is a decision to source selected functions from external provider(s) while still providing between 20% and 80% of the function's operating budget internally. Total outsourcing is the decision to transfer the equivalent of more than 80% of the function's operating budget for assets, leases, staff, and management responsibility to external providers. According to Sambamurthy and Zmud (1999), the more an organization outsources its IT, the more dependent it may become on this IT vendor, and the more isomorphism will be created between their IT Governance modes.

P2 (organizational-level): The greater the centralization of the IT resources supply for an organization, the greater the extent to which it will change its IT Governance mode isomorphically to resemble the organizations on which it depends for IT resources.

Isomorphism is also a consequence of the influence of IT source support. Considering the example of ERP systems, companies that implement a specific ERP solution will try to implement its IT Governance modes to gain the best results from the ERP system.

P3 (field-level): The greater the extent to which an organizational field is dependent upon a single (or several similar) IT sources of support for vital IT resources, the higher the level of isomorphism in its IT Governance modes. Besides, the organizational field can be compelling in shaping IT Governance modes choice. Gosain (2004) argues that organizations operating in highly regulated domains will tend to have enterprise information systems with similar mandated configurations. For instance, the banking industry can be perceived to be significantly regulated. Ang and Cummings (1997) show in the context of IT outsourcing that banks tend to acquiesce to the influence of federal regulators, in addition to the fact that they have to respond more strategically to pressures from

peer banks. Therefore, one may also assume that the organizational field may influence IT Governance modes, and that the legitimation strategy of organizations varies, depending on the source of coercive pressure (Oliver, 1991). The whole process will create isomorphism between the respective IT Governance modes. For example, COBIT (Control Objectives of Information and related Technology) was created by the Information Systems Audit and Control Association (ISACA) and the IT Governance Institute (ITGI). COBIT presents a set of IT best practices, which helps to develop appropriate IT Governance. At present, thousands of companies inside and outside the US adopted COBIT and similarly shaped their IT Governance modes. Another example is the Sarbanes-Oxley law (SOX), a preventive response to corporate scandals like Enron. SOX defines standards related to accounting and reporting practices for all U.S. public company boards, management, and public accounting firms. Since IT systems provide accounting and reporting, SOX also has implications on IT Governance. Thus, the use of COBIT and SOX law application created isomorphism between several companies around the world.

P4 (field-level): The greater the extent to which the organizations in a field transact with governmental agencies, the greater the extent of isomorphism in IT Governance modes in the field as a whole.

B. *Mimetic Pressures*

Mimetic pressures are caused by peers, professional associations, or competitors (Teo, Wei, et al., 2003; Khalifa and Davison, 2006). Since the decentralization process in organizations spread the locus of IT decisions around the organization, problems began to emerge. IT applications were well understood by subunit managers who, though willing, were not necessarily capable of controlling and acquiring IT resources. IT was developing rapidly, business strategy was often dynamic, and organizations were open to changes in the market (Boynton, Jacobs, et al., 1992). These changes caused pressures to react rapidly and manage technologies. As DiMaggio and Powell (1983) point out, a mimetic process starts in situations where technologies are poorly understood and where there is a loose coupling between legitimated external practices and internal organizational behavior. This situation will create isomorphism in the organizational field (Boynton and Zmud, 1987).

P5 (organizational-level): The more uncertain the relationship between means and ends in IT management, the greater the extent to which an organization will model its IT Governance mode after organizations it perceives to be successful.

P6 (field-level): The greater the extent to which information technologies are uncertain within a field, the

greater the rate of isomorphic change in its IT Governance mode.

C. *Normative Pressures*

Normative pressures are caused by inter-organizational networks and similar educational backgrounds (DiMaggio and Powell, 1983). IT development can be seen to cause transformations in IT Governance modes. In the DB-era (1960s – early 1980s) (McFarlan and Nolan, 1995), due to reasonably stable technical development, IT functions were mainly the responsibility of IT people (Boynton and Zmud, 1987). In the micro-era (1980s – early 1990s) (McFarlan and Nolan, 1995), decentralization of decision making increased in tandem with third-party applications. Executive management started to recognize IT's strategic possibilities (Jarvenpaa and Ives, 1991), and more strategic links were formulated between IT and business planning. By forming these links, called strategic alignment (Henderson and Venkatraman, 1993), organizations aim to make their IT functions more flexible in serving business to achieve success (Sabherwal, Hirschheim, et al., 2001). In other words, organizations define the legitimate means, such as the decision locus of IT Governance, to realize developmental expectations to guide behavior.

However, even though executive management was very interested in IT, only a few substantial changes were observed in IT management's decision locus (Boynton and Zmud, 1987). The action of this kind created isomorphism in organizations' IT Governance modes during these computer eras (DB-era and micro-era). Jarvenpaa and Ives (1991) show that the CEO's background advanced progressive use of IT. They measure background in terms of the CEO's functional background (e.g., sales vs. administration) and age. Age covers issues such as experience in IT and education. Thus, the following proposition can be formulated:

P7 (organizational-level): The greater the reliance on academic credentials in choosing IT managerial and staff personnel, the greater the extent to which the IT Governance mode of an organization will resemble that of others in its field.

Besides, according to Teo et al. (2003), adopting a technology is influenced by normative pressures caused by partners from the organization's professional environment. Teo et al. (2003) claim that normative pressures are higher when participation in professional associations promotes a specific technology. These findings can also be applied to the choice of IT Governance modes.

According to Von Simson (1990), one of the factors driving centralization is the variety of the information systems profession. When a larger variety of skills is needed, the availability of those skills becomes scant, leading to a situation where the necessary skills are

collected from throughout the decentralized structure and then centralized to provide career paths for IS staff.

P8 (organizational-level): The greater the participation of organizational managers in trade and professional associations, the more likely the organization's IT Governance mode becomes similar to the IT Governance mode of others in its field.

P9 (field-level): The greater the extent of structuration in a field, the greater the degree to which IT Governance modes are isomorphic.

4. CASE STUDY AND RESULTS

Since research in IT Governance and institutional theory is in its early stages and theoretical models are hardly available, we decided to conduct a case study to collect data and validate propositions. The concept of IT Governance itself is relatively new (it only emerged in the late nineties), and there has been little research developed on which we can build (De Haes and Van Grembergen, 2008, 2015).

Our research strategy was to start by using literature to develop the theoretical framework and related propositions and then conduct a case study to obtain a richer insight into reality (Mingers, 2001). This triangulation method between multiple different research methods is strongly recommended when exploring a topic with few past research already published (De Haes and Van Grembergen, 2008, 2015). According to Mingers (2001), "different research methods focus on different aspects of reality and therefore a richer understanding of a research topic will be gained by combining several methods in a single piece of research or research program." Our methodology was based on data collection and analysis steps proposed by Yin (2009).

A. Case Presentation

As mentioned above, a case study was performed in order to collect data and validate propositions. Data collection took place in a Ministry of the province of Québec, Canada. The Ministry's selection to collect our data was based on two main criteria: first, the organization should have an established IT Governance policy and a framework for managing IT. Second, the organization needs to evolve in a well-established and mature organizational field. The CIO and four of his Top Executive IT managers were interviewed. The five semi-structured interviews lasted between 1 hour and 1 hour and a half each. Data was then codified.

The Ministry was one of the most important in the province of Québec. It had offices in several cities of the province and employed 2970 persons at the time of interviews.

B. Results

The case study helped verify four propositions.

P1 (supported): The greater the dependence of an organization as an institution on another organization as an institution, the more the latter will influence the former's IT Governance mode choice.

Our data showed that the Ministry was dependent on the Direction Générale des Technologies de l'Information (DGTI, The General Directorate of Information Technology). The DGTI brings the vision of their business sector while the Ministry operates as a departmental manager of IT, responsible for ensuring an effective and efficient development and IT use. This dependence caused a resemblance between IT Governance modes choice. For instance, both organizations manage their IT architecture in a centralized way. On the other hand, both organizations managed the deployment of their IT projects in a decentralized way. Therefore, we can conclude that coercive pressures played a role in the choice of IT Governance modes for this Ministry.

P2 (supported): The greater the centralization of the IT resources supply for an organization, the greater the extent to which it will change its IT Governance mode isomorphically to resemble the organizations on which it depends for IT resources.

The same arguments that were used to support P1 can also be used for P2. In fact, since the Ministry's IT architecture was managed in a centralized way, this caused what appears to be an isomorphism between both organizations. Again, coercive pressures seem to play an important role in choosing IT Governance modes in this Ministry.

P4 (supported): The greater the extent to which the organizations in a field transact with governmental agencies, the greater the extent of isomorphism in IT Governance modes in the field as a whole.

Our data showed also support for P4. The Ministry had around 30% of its transactions with other governmental agencies and ministries. This caused isomorphism in IT Governance modes choice in the whole governmental field. According to our interviewees, the continuous interaction with other governmental structures indirectly shaped their choice in governing the IT function. For instance, the federal governance mode became more and more present during the last five years due to isomorphism observed between governmental agencies and ministries. We can also conclude that coercive pressures played an important role in choosing IT Governance modes in this Ministry.

P7 (supported): The greater the reliance on academic credentials in choosing IT managerial and staff personnel, the greater the extent to which the IT Governance mode of an organization will resemble that of others in its field.

P7 was also supported. Québec public sector policies are very structured and clear about academic credentials and

employees' career evolution. Our data showed that even with the right experience, IT managers and staff personnel could not get a better position if they do not have the minimum academic credentials set for a job. The support for P7 is also due to the isomorphism in IT Governance modes observed in the governmental field. Therefore, we can conclude that normative pressures played an important role in choosing IT Governance modes in this Ministry. Unfortunately, there was not enough data to assess P3, P5, P6, P8, and P9.

5. CONCLUSION

This paper provides two main contributions to both IT Governance and institutional theory literature by presenting IT Governance modes as institutions and mapping institutional pressures with IT Governance modes. First, a demonstration is made showing that the three different IT Governance modes - centralized, decentralized, and federal - meet the requirements of process and property variables and can thus be considered legitimized institutions. Second, institutional pressures are shown to play an important role in determining the chosen IT Governance mode. Coercive pressures exerted by the organization's legal environment and by standards imposed by structures on which the organization is dependent may have an impact on the IT Governance mode choice. Mimetic pressures caused by peers, professional associations, or competitors also play an important role in IT Governance mode choice. Finally, normative pressures caused by inter-organizational networks and similar educational backgrounds may also influence the IT Governance choice. Furthermore, propositions related to institutional pressures are adopted from DiMaggio and Powell (1983). This paper shows that even two decades after the original hypothesis of isomorphism was formulated (DiMaggio and Powell, 1983), they still represent today's reality. However, as DiMaggio and Powell (1983) consider only organizations to be institutions, IT Governance modes were added into their nomological net to formulate new propositions. Furthermore, the conceptual framework contributes to the literature pertaining to both IT Governance and institutional theory.

Also, a case study was conducted. Collected data and analysis lead to the support P1, P2, P4, and P7. This confirms that coercive pressures and normative pressures play an essential role in shaping IT Governance modes' choice. However, we could not confirm the influence of mimetic pressures on IT Governance modes' choice. This is because a single case study does not provide sufficient data to assess the nine formulated propositions. Furthermore, it was challenging to collect data about mimetic behavior from the CIO and his Top Executive IT managers. They felt that mimetism was a negative

behavior and insisted that they do not manage their IT function "that way."

For practitioners, the implications are twofold. This study shows that IT Governance as an institution is an essential part of corporate Governance and organizational structure. However, the most significant finding of this study is that governance modes are not only a product of rational actors but that non-rational elements, namely institutional pressures, also influence them. This, in turn, inspires more mindful thought on IT Governance modes and IT Governance in general. In mindful thinking (Swanson and Ramiller, 2004), the organizations add reasoning, rational acting, and institutional pressures, grounded on their organizational facts and specifics to their IT Governance issues.

This paper presents some limitations. The paper describes IT Governance modes as institutions but does not evaluate how institutionalized (degree of Institutionalization) these IT Governance modes are. Furthermore, static lenses are adopted to evaluate IT Governance modes as institutions. Only the locus of decision-making view is adopted, thus delimiting a more dynamic view of how IT delivers these spheres of key IT activities. The developed theoretical framework is very general and not related to any specific context, technology, or problem. Finally, a single case study was used to verify the propositions. A more extensive data collection could provide more robust evidence.

Future research could collect more data in order to validate all propositions. Also, future research could add more specificity to the studied context and technology to refine studied propositions. Future multiple case studies could glean richer explanations and verify propositions based on a process model. Finally, the instructions presented by Jepperson (1991) could be used in future research to explore the degree of Institutionalization of IT Governance modes. This will provide more grounding and verifications for the presented propositions.

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