INTERORGANIZATIONAL GOVERNANCE OF INFORMATION TECHNOLOGY

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Abstract

This study aims at better understanding how information technology (IT) governance supports organizations in their business exchanges with other organizations. Its main objective is to define the various modes of IT governance contributing to successful interorganizational relationships. Borrowing from the network governance area, three major constructs – structure, processes, and participants – are considered to study these modes. The maturity state of the interorganizational relationships is also taken into account to better explain the level of success of each observed relation. Through pilot cases, we want to provide both practitioners and academics with an enriched understanding of the challenges related to the governance of IT during interorganizational relationships.

1. Context

The globalization of markets brings organizations to remodel their business relationships. Rapid changes in business environment, international pressures, and a plea for increased effectiveness call for more interorganizational relationships. Organizations are pressured to lower production costs, reduce time to market, and build closer relationships with clients. However, they face difficulty in finding qualified personnel and must deal with the constant arrival of more effective software, new technology, and competitors in the market. Market uncertainties are easier to control when organizations combine their competencies and their know-how to face competition in order to keep or gain the lead in their markets. The recent advances in IT have largely contributed to an increase of interorganizational relationships by offering an essential ingredient to these new organizational forms [1, 2 ,3]. Examples of IT applications that support interorganizational relationships are: EDI, extranets, B2B (business-to business) electronic commerce, as well as other IT applications that facilitate the collaborative commerce among partners, including collaborative planning, forecasting, and replenishment (CPFR), advanced planning and scheduling (APS), and product lifecycle management (PLM) systems [4]. Task and function interdependence needs a lot of coordination among companies conducting electronic exchanges [5]. However, few organizations, if any, share the same business strategy, business processes, IT infrastructure and architecture, and/or structure of their IT department. All these aspects create challenges for business partners and incite them to put in place governance mechanisms that would help them in successfully conducting exchanges among independent businesses, despite a lack of commonalities.

This phenomenon is also observed within large organizations with several business units where each of them has its own mission, strategy, structure, processes and IT infrastructure and architecture. The challenge for such organizations is to create an inter-unit governance of IT that is developed in a similar way to the interorganizational governance of IT.

In this paper, we first present two short illustrations of interorganizational governance of IT to reveal the complexities of real life situations companies are facing when dealing with the governance of IT among independent business units. We then present a theoretical background and a research model that could help understand and identify the main variables related to successful interorganizational governance of IT. Following a methodology section, we discuss the applicability of the research model to the two short cases, to conclude with the limitations and contributions.

1.1. AIRLINER

In 2005, a major Canadian airline carrier, hereto referred to as AIRLINER, underwent a restructuring of its various independent and for-profit business units in order to provide more autonomy and self-government to each unit. AIRLINER was facing several internal organizational issues that required them to refocus energies and processes to match their business values. One of the primary goals was to increase effectiveness and value of the IT function, and thus a governance and policy remodeling was in order. The governance of IT within each business unit was such that each independent business unit had a say and a voice in the direction and strategy of IT. It mimicked the overall corporate governance formula and decision-making involved all levels of management and amongst executives in order to achieve consensus.

The ultimate goal at AIRLINER was to create a more decentralized IT governance model, providing each business unit the opportunity to achieve corporate goals using processes and people that suited them best. The expectation was that business units would collaborate without interference at the corporate level. Thus the foundation for network-based interorganizational governance of IT was laid; each business unit who had weakly-structured relationships with other units had to increase their cooperation with each other regarding their IT activities.

One individual was newly appointed as the CIO of one of the business units located in a different country. It was expected of him that he would provide direction to the other business units, as well as assist the organization in the overall directing of the reorganization, given his previous success in implementing IT governance. It was hoped that he and his team would be able to bring the best practices for the whole organization. It was the management's plan that new ideas brought about by this new CIO would result in a positive outcome in this restructuration.

Unfortunately, there was no formal announcement made to reinforce the leading role of the new comer, there were no formal processes put in place to facilitate the collaboration amongst all units; and the distance between the business units added to the complexity since they were spread across North America and Europe. But most importantly, the new CIO was left without organizational support, and therefore acted independently without consulting other members in the network.

It resulted that each business unit decided to target their immediate IT goals and ignore the requirements of other units, as well as those outlined by the organizational strategy. It seems that the need to develop the guiding principles of the interorganizational (or inter-unit) governance of IT was overlooked and resulted in a failure.

1.2. MANU vs. TAKEOVER

In 2007, a large Canadian industrial manufacturer, hereto referred to as MANU, was acquired by a foreign organization in a friendly takeover deal that required a complete restructuring of the new entity and new governance policies to be formed. The acquiring firm, hereto referred to as TAKEOVER, intended to create a hybrid entity that would maximize the benefits of both TAKEOVER and MANU's policies. From an IT perspective, the goal was to adopt the IT governance of the acquiring firm, though still allow for the mature processes in MANU to facilitate policy- and decision-making; thus, a hybrid governance structure would be formed, ultimately allowing for the spinoff of all assets into the new entity. These "best practices" IT policies would hopefully allow for smoother adoption of the new governance modes.

TAKEOVER intended to centralize the IT decision-making since it was the acquiring firm. MANU had to adjust to the overall reality of TAKEOVER. Therefore, the new structure was supposed to use the majority of the aspects from TAKEOVER's structures and processes. That was accomplished by bringing over MANU's people and talent. However, MANU's governance structure was fundamentally distributed and decentralized and was considered to be more mature than TAKEOVER's.

The implementation of these "best practices" policies ultimately decreased the overall process maturity. The "best practices" became "average practices" whereby processes from both MANU and TAKEOVER were considered. While MANU may have had stronger and more robust processes, TAKEOVER would still implement their current policies in many cases and thus implement conflicting processes resulting in sub-optimal results. Despite the situation, the acquisition was ultimately successful.

2. Theoretical background

There is a lack of research that specifically looks at how these organizations define their interorganizational governance of IT. Thus, the proliferation of interorganizational collaborations and the importance for organizations to be successful in these relationships, coupled with the lack of research

on IT governance in interorganizational contexts, are the main rationale supporting the need for proposing a framework useful to analyze such situations. The following sub-sections cover the main areas used to better understand this phenomenon. IT governance and interorganizational relationships are first explained. Interorganizational relationships and interorganizational governance are then respectively defined and depicted, followed by an introduction to the various states of maturity found in interorganizational relationships. Finally successful interorganizational relationships are explained.

2.1. IT governance

IT governance has gone through several iterating definitions in academic literature; no term has been more skewed, stretched and distorted [6]. Up until the mid 1990's, most information systems were targeted toward in-house use. IT governance has often been applied from an internal perspective [7-10]. While structural, process, and relational capabilities are an integral part of effective IT governance [11], IT governance specifies the decision rights and accountability framework to encourage desirable behavior in the use of IT [12]. The same authors proposed six archetypes of governance for making these decisions related to IT principles, architecture, infrastructure, applications, and investment. These archetypes are business monarchy, IT monarchy, feudal, federal, IT duopoly, and anarchy, whereby the role and level of the participants within the hierarchy define each archetype. This is close to Sambamurthy and Zmud's view of IT governance [7], who defined IT governance as the patterns of authority regarding IT infrastructure, IT use, and IT project management. For the IT Governance Institute [13], IT governance represents "the set of responsibilities and practices exercised by senior management of the enterprise designed to establish and communicate strategic direction, insure realization of goals and objective, mitigate risk, and verify that assigned resources are used in an effective and efficient manner". However, these archetypes and views of IT governance have been determined within firms and not in an interorganizational context. The outcomes of IT governance are the achievement of strategic goals, the production of relevant and pertinent information for business, the availability, timeliness, accuracy, completeness and efficiency of business-critical information [14]. IT governance has been demonstrated to correlate significantly to firm performance [15, 16]. In multi-business firms, IT governance helps create synergies obtainable through shared yet not identical IT infrastructures, IT strategy

making processes, IT vendor management processes, and IT human resource management processes. The lack of commonalities and the uniqueness of each component make the governance of IT in this context extremely challenging.

2.2. Interorganizational relationships

Interorganizational relationships are comprised of transactions, flows, and linkages that occur over a relatively long period of time between at least two organizations [17-19]. Six various forms of interorganizational relationships exist: joint venture, network, consortia, alliance, trade association, and interlock directorate [20, 21]. These forms vary depending upon the degree to which the organizations are tightly linked. Interorganizational relationships also require the coordination of task and function interdependence [5]. Such interdependence suggests that each participant could be independent of the others, or that each one could be dependent on the preceding one, depending on how the interorganizational relationships are set.

2.3. Interorganizational governance

Three basic perspectives of interorganizational governance are well known: market, hierarchy, and network. Market governance is episodic, rather than enduring, formed only for the purpose of transferring goods and resources, and terminates at the end of the transfer. It is mainly studied trough transaction cost economics. Hierarchy governance lasts longer than market governance and is supported by legitimate authority to resolve disputes that occur between participants. Network governance is a hybrid form of the previous forms of interorganizational governance and is based on the relational exchange theory [22]. This form of governance looks over repeated and enduring interfirm exchanges, but still lacks the legitimate authority to resolve disputes [23-25]. Different terms and definitions exist for network governance, as indicated by Jones, Hesterly, and Borgatti, 1997) [26]. They provide an inclusive definition of network governance which "involves a select, persistent, and structured set of autonomous firms […] engaged in creating products or services based on implicit and open-ended contracts to adapt to environment contingences and to coordinate and safeguard exchanges. These contracts are socially – not legally – binding" (p. 914). Mutuality and interdependence favor effective interactions and create a tool for future cooperation [27].

Because industries are increasingly using the network governance perspective [26], this research

could be based on this particular one. The mechanisms that sustain the network governance not only include structure and processes normally associated with the market or hierarchy perspectives [23, 25], but also include the participants [1, 28]. Structures, processes, and participants serve to influence and shape the various forms of governance in interorganizational relationships [1].

2.4 State of maturity of interorganizational relationships

The notion of maturity has been applied within the IT field by Ross (2003) [29] who reveals that the evolution of IT governance arrangements goes through four main phases, namely the silo application architecture, standardized technology architecture, rationalized data architecture, and modular architecture. The maturity of interorganizational relationships happens in a dynamic and interactive manner over various states [2, 22, 30-32]. An exhaustive review integrating previous findings [27, 33-37] indicates that six states exist in the development of interorganizational relationships. These states, tested with cross-cultural case studies data are: searching, starting, development, maintenance, termination, and dormant [2].

2.5 Successful interorganizational relationships

Organizations create successful relationships with others when they gain access to new resource, reach some economies of scale, share risks and costs, or gain access to a foreign market. They also succeed when they develop a new product or service through collaboration, learn from the others, gain some speed or flexibility to market, or neutralize or block the competition [20]. Ultimately, this could be reflected in improved sales, growth, market share of specific products or services, or profitability among participating organizations [16].

3. Research model

We define the interorganizational governance of IT as the authority and accountability frameworks put in place to encourage the efficient and effective use of IT when sustaining electronic exchanges among business partners. Figure 1 illustrates how a gestalt of the interorganizational governance of IT is dependent upon the mix of structure, process, participant, and state.
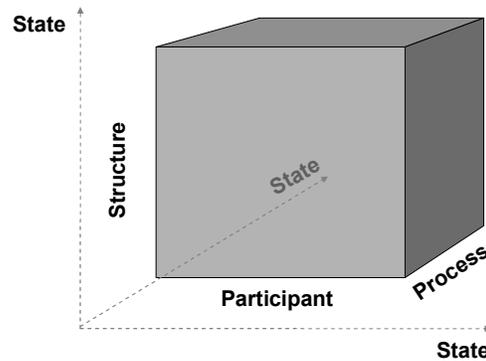

Figure 1 Gestalts of interorganizational governance of information technology

The research model presented in Figure 2 illustrates the general research question: How does the interorganizational governance of IT contribute to the success of electronic exchanges conducted between business partners? More explicitly, we want to investigate the following specific research questions: 1) What are the various gestalts of IT governance found in interorganizational relationships when taking into account structure, processes, participants, and states? and 2) How do these gestalts contribute to successful interorganizational relationships?
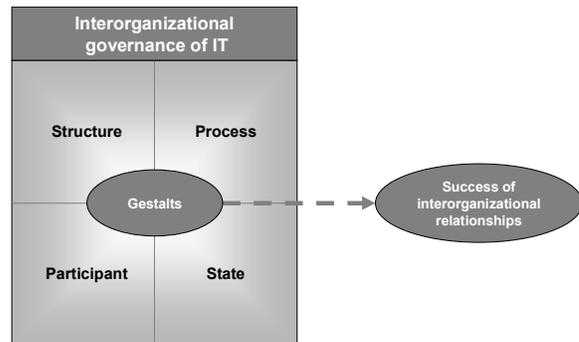

Figure 2 Proposed Research Model

To answer these questions, six constructs could be used. The first three constructs are based on the network governance theory proposed by Winkler (2006) [1]. They are the structure, the processes, and the network participants.

Structure is a key force in shaping and implementing the agendas between organizations, determining who has the power to act, and what resources are exploited [1, 38]. It corresponds to the ways in which interorganizational work is divided

among the partnering organizations by assigning specific roles to these organizations and the ways in which coordination is achieved among these roles [39].

Processes correspond to formal and informal tools put in place to realize interorganizational relationships by empowering communication between participants and to influence the interfirm agenda [1].

Participants in interorganizational relationships are individuals, groups and organizations having the power and know-how to influence and endorse the interorganizational relationships agenda [1, 38].

The fourth construct is the maturity *state* of the interorganizational relationships, which corresponds to a situation or set of conditions at a point in time, in which an interorganizational relationship exists [2].

The fifth construct is the *gestalts* of interorganizational governance of IT. A gestalt is a cluster built from the four previous constructs "that collectively defines a meaningful and coherent slice of organizational reality" [40, p. 8]. The perspective adopted in this research is based on an internal congruence conceptualization, whereby a gestalt is a set of relationships. The gestalt emerges from a refined, integrated and more complex situation than an archetype. Adopting this perspective implies that "instead of looking at a few variables or at linear associations among such variables we should be trying to find frequently recurring clusters of attributes or gestalts" [40, p. 5].

The last construct is the *success of interorganizational relationships*. Success is defined by the summation of advantages and disadvantages for interorganizational relationships participants. Barringer and Harrison (2000) [20] provide an exhaustive list of both advantages and disadvantages for organizations to enter into interorganizational relationships.

4. Methodology

Because this research is exploratory and in its early stage, a pilot case approach was used to validate the proposed research constructs and model, following Yin's recommendations [41]. Two pilot cases were used to improve both substantive and methodological issues. As indicated by Yin, studies can include several pilot cases. The main criteria for selecting the cases were convenience and access.

The researchers met with the former CIO of AIRLINER and the former Director of IT governance at MANU to validate their views on this research. Each semi-structured interview lasted one hour. The model was first explained where each construct was

defined for validation purposes and then see if each component made sense by itself and also when combined together to create the proposed model. By referring to past experiences in implementing an interorganizational governance of IT, it was possible to validate that indeed each construct and the model help in explaining why the implementation of interorganizational governance of IT may succeed or not.

5. Discussion

Going back to both illustrations of attempts in implementing an interorganizational governance of IT, each proposed component has played a role at one point in time. In the case of AIRLINER, the arrival of the new CIO who found it more efficient to avoid the network instead of being part of it indicates that the participant construct is an important factor to consider when studying this phenomenon. Another aspect is that the structure of the relationships was not mature enough and led to no improvement in the process maturity, as processes evolved independently within each unit. Because of this lack of mature processes, each business unit decided to attack their immediate goals and ignore the requirements of other units, as well as those outlined by the organizational strategy. There was an attempt to increase the maturity of the structure using experienced individuals, but mature processes were missing.

The arrival of a new CIO with unclear roles and responsibilities, a lack of top management commitment and follow-up, coupled with a weak CIO accountability led to a weak interorganizational governance of IT. This unmanaged environment does not allow the researchers to identify a gestalt and to link it to success; at most does it allow them to say that a weak governance environment is linked to a very low success of IT interorganizational governance.

In the case of MANU, the maturity of both IT governances was different, where MANU had a more mature one than TAKEOVER. However the structure and process of TAKEOVER were chosen over MANU since TAKEOVER was the acquirer and requested MANU to adjust to its structure and processes despite the fact that MANU had the best ones. The role of the participants in designing the governance policies was crucial again. The acquisition was ultimately successful, though there was an overall drop in the process maturity and the structure maturity; the former being unintentional, the latter by design.

Because the acquisition by TAKEOVER happened less than six months ago when the

interview was conducted, there was not enough information to identify a gestalt. However, the approach taken so far seems to facilitate the implementation of the governance of IT amongst business units.

6. Limitations and Contributions

These two pilot cases represent only one first step in a multiple-case study research. It carries however some limitations. First, the units of analysis chosen might not represent pure interorganizational situations. For instance, in the first case, the business relationship between AIRLINER and the other business unit might not represent fully independent organizations. The same observation can be made regarding TAKEOVER where IT governance was studied in a context of the integration of a large manufacturer to a much larger international one.

The next step could be to select independent businesses using specific business-to-business technology such as an extended value chain supported by an ERP linking an independent supplier to an independent buyer.

Second, as suggested by De Haes and Van Grembergen (2006) [42], it would be appropriate to interview more than one business representative by organization and to draw information from each IT governance level (strategic, managerial and operational). This would allow a richer understanding of the business and the interorganizational governance of IT.

Third, the researchers experienced some difficulties in drawing gestalts due to the high structural and managerial complexities of very large businesses. To alleviate this problem, we need to be more specific in the selection of the business units and the type of interorganizational IT links. A larger sample size is also needed.

The next phase of this study is to conduct multiple case-studies in order to test the model. We expect to find out patterns reflecting the gestalts of governance and their contribution to successful interorganizational relationships.

The proposed research framework should help both practitioners and academics to better understand the phenomena of interorganizational governance of IT and how to address each of its specific components.

This on-going research offers various potential contributions. First, the IT governance of interorganizational relationships has not been very well studied so far. Moreover, the maturity state adds a dynamic approach to the usual and more static investigation on IT governance. This research is among the first to link these emerging modes of interorganizational IT governance to the success of interorganizational relationships. Comparing the emerging modes will allow determining the ones that are likely to best support the multi-partners exchanges, and those that are less successful to do so, taking into account the various states in the development of process.

The two illustrations provided at the beginning and the discussion that followed indicate that a deeper understanding of interorganizational governance of IT is needed. We expect that discovering new modes of interorganizational IT governance will provide guidelines for an efficient and effective use of IT for successful interorganizational relationships.

7. References

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