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An Institutional Theory Account of How Governance Affects Alignment and Performance Outcomes in a Complex IS Project

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Abstract

A long-standing challenge in the Information Systems discipline is the development of a theoretical account of how IT alignment is achieved, sustained, and generates positive effects. In this paper, we focus on a key piece of that problem: the role of governance. It is commonly agreed that governance – the leadership, structure, and decision-making processes instituted to ensure that IS projects generate value while minimising risk – plays an important role in achieving and sustaining IT alignment, but there has been little theoretical work on how it may do so. Without such theoretical development, it is difficult to justify the linkages between IT governance, alignment, and performance, and explain how these links play out in practice. We seek to contribute to the IT alignment and IT governance literatures by providing an institutional theory account of how governance – and changes in governance over time – affect the achievement and sustainment of alignment in a complex IS project, and thereby affect the project's performance outcomes.

Keywords: Information systems projects, complexity, institutional theory, governance, alignment, performance.

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1. Introduction

The topic of Business/IT alignment (hereafter, ‘alignment’) has long been central to the IS discipline, with hundreds of studies over several decades. Although that work has generated many valuable insights, alignment researchers argue that we need to go beyond the predominant factor-based view – examining what alignment is, what factors influence it, and what factors moderate its impact on performance – to a more longitudinal, process view – examining how to achieve alignment, how to sustain it, and how performance is derived from it (Chan and Reich 2007; Vessey and Ward 2013). The hope is that by examining the alignment process more closely, we can generate more useful insights for practice (Langley et al. 2013). This is important given the challenges practitioners still face in achieving and sustaining it (Luftman and Derksen 2012; Wagner 2014).

In addition to focusing on alignment as a process, Chan and Reich (2007) call for researchers to develop richer theories of alignment. Accordingly, the aim of this paper is to contribute to the alignment literature by providing a theoretical account of the alignment process. To scope the work, we focus on one part of the process, IT governance, and one context, complex IS projects.

IT governance can be viewed in various ways but a common definition is that it involves the leadership, structure, and decision-making processes instituted to ensure that IS projects generate value while minimising risk (Bowen et al. 2007; ITGI 2007). Given its role in ensuring positive outcomes, it is natural to expect good governance to play a key role in achieving and sustaining alignment, but there has been little research on how it may do so.¹ We seek to contribute such insights in the context of complex IS projects because these projects have major implications for improving or impairing alignment (Barley 1986; Nelson 2005). Compared to simple projects, complex projects have more stakeholders, uncertainty,

¹ For instance, when we conducted a search on the Scopus database, we found 99 articles for the keywords “IT alignment” but we found only 18 articles when we adjusted the query to: governance *and* “IT alignment.”

and parts (e.g., sub-projects) (DOD 2012). The difficulty of achieving alignment and the consequences of misalignment are magnified in such cases, so achieving effective governance is especially critical and yet challenging (Koh and Crawford 2012).

To provide a theoretical account of how governance, alignment, and performance relate in the context of a complex IS project, we turn to institutional theory.² While other theories could also be useful (e.g., complexity theory, Vessey and Ward 2013), the literature suggests that institutional theory could be particularly useful. For instance, in project management (Florice et al. 2014), and the management field of which it is part (Westphal and Zajac 2013), researchers have called for greater use of social theories such as institutional theory to explain governance processes, rather than limit themselves to rational economic 004)</DisplayText><record><rec-number(Badewi and Shehab 2016). Likewise, in IS, Jacobson (2009) singled out institutional theory for its potential to explain how governance occurs, changes, and affects performance, and others have called for alignment researchers to use institutional theory too (Dhaliwal et al. 2011). Motivated by such papers, we set out to provide what we believe is one of the first institutional theory accounts of the links between governance, alignment, and performance in a complex IS project context. We believe the theory offers several novel and empirically testable insights as well as a fresh alternative to more economically-rational perspectives in the field.

The paper is structured as follows. We begin by defining our key concepts (governance, alignment, and performance), describe the context we are focusing on (complex IS projects), and provide a brief overview of institutional theory. We then apply institutional theory to provide our theoretical account of how governance, alignment, and performance relate in a complex IS project context. Finally, we discuss the possible contributions and implications of the proposed theory, acknowledge several limitations, and conclude the paper.

² We use ‘institutional theory’ broadly to refer to theories in the institutional tradition, rather than distinguishing between variants within the tradition, e.g., between institutional theory, neoinstitutional theory, institutional logics, and institutional work. See Thornton et al. (2012) for a similar holistic perspective.

2. Background

In this section, we provide relevant background on our concepts, context, and theory.

2.1 Key Concepts

As noted earlier, we define ***governance*** in a project as the leadership, structure, and decision-making processes instituted to ensure that IS projects generate value while minimising risk (Bowen et al. 2007; ITGI 2007). For clarity, we note how governance differs from related concepts such as *project management* and *project control*. All three concepts have been defined in various ways (Samset and Volden 2016; Turner 2006), but a common definition of project management is “the application of processes, methods, knowledge, skills and experience to achieve the project objectives” (<https://www.apm.org.uk/WhatIsPM>) and a common definition of project control is “any attempt to align individual behaviors with organizational objectives” (Wiener et al. 2016 p. A1). Clearly, all three concepts (governance, management, and control) focus on actors’ efforts to ensure the achievement of project objectives. We can distinguish the concepts, however, by the actors involved, scope of the activities, and the underlying paradigm.

In relation to the actors involved, actors in large organizations who are ascribed the role of “project manager” are typically employed at a lower level of the organizational hierarchy than, and report to, the actors ascribed the role of “governing” the project (typically in a group such as a board or steering committee). Thus, it is often said that project managers operate *within* the existing organizational governance structure (ITGI 2003 p. 10; Turner 2006; Van Grembergen and De Haes 2010 p. 1; Weill and Ross 2004 p. 2).

In relation to the scope of the activities, project governance and project management are both broader concepts than project control. The classical definition of management is that management has four functions (planning, leading, organizing, and controlling) (Tsoukas 1994). Thus, controlling is just a subset of management. In other words, we view project

governance as different to project management and project control given the higher level at which governance takes place both in terms of those involved and the decisions made.

In relation to the paradigm underlying the concept, project management is a broad concept that can be studied from many theoretical paradigms; in fact, many argue that the underlying paradigm is still in development (Florice et al. 2014; Soderlund 2004). On the other hand, the literature on project control has tended to operate within one single paradigm – an economically-rational agency-theory perspective (e.g., Choudhury and Sabherwal 2003; Chua et al. 2012; Kirsch 1996; Wiener et al. 2016). One of the underlying motivations of this paper is that research on governance should look more broadly than such a paradigm, e.g., to consider institutional effects rather than just economically rational effects (Jacobson 2009).

As one final clarification, we note that we view governance as an activity (i.e., *governance-in-action*) (Fox and Ward 2008), rather than as a static structure. That is, our view of governance implies that governance is enacted by senior organizational actors as they lead the project, as they structure and restructure it, and as they make high-level project decisions. This is consistent with recommendations in the IS literature (e.g., Jacobson 2009).

Having defined governance, we turn to *alignment*. Alignment is also defined in various ways (Gerow et al. 2014; Gerow et al. 2015; Reich and Benbasat 2000). The most widely-cited definition stems from Henderson and Venkatramen's (1989) strategic alignment model (SAM), which depicts alignment in terms of relationships among four domains: 1) business strategy, 2) IT strategy, 3) business infrastructure and processes, and 4) IT infrastructure and processes. Based on these four domains, it defines six types of alignment: intellectual alignment (between business- and IT-strategy), operational alignment (between business- and IT- infrastructure and processes), business alignment (between business strategy and business infrastructure and processes), IT alignment (between IT strategy and IT infrastructure and processes), and two types of cross-domain alignment (between business

strategy and IT infrastructure and processes, and between IT strategy and business infrastructure and processes). Of these types, we are particularly interested in intellectual and operational alignment because IS projects seek to align IS investments with organizational goals. Thus, business alignment and IT alignment alone are not the focus. Past research indicates that more mature governance is associated with greater alignment (De Haes and Grembergen 2009), but it remains to be theorized how this activity occurs. In doing so, a process perspective is critical, and long called for (Chan and Reich 2007; Karpovsky and Galliers 2015; Schlosser et al. 2015; Vessey and Ward 2013; Wagner et al. 2014).

The final concept in our model is *performance*. We view performance as synonymous with project success, i.e., the achievement of objective and subjective success criteria at the end of a project (Joslin and Muller 2016). Rather than viewing performance purely in terms of the ‘iron triangle’ components (on-time, on-spec, on-budget), we follow the literature in taking a broader perspective to consider the full range of intended and unintended impacts deemed relevant by stakeholders involved (Jugdev and Muller 2005; Nelson 2005). As would be expected of an institutional theory study, we assume that perceived and actual benefits can differ (Neves et al. 2016) and that different stakeholders may view benefits and success differently (Davis 2014). We also recognize that performance can be hard (even impossible) to judge in complex and uncertain projects, e.g., when there is a lack of clarity in the project objectives and scope and when the project will not reach completion for many years (Atkinson et al. 2006; Bakhshi et al. 2016). Likewise, we recognize that the links between governance (and indeed, any antecedent) and performance are hard to assess (March and Sutton 1997). We also agree with those who argue that performance, as a construct, may be too abstract and that it could be better to theorize *specific* aspects of performance of interest in a given study (Miller et al. 2013). Our theorizing is not sufficiently advanced, at this stage, to pre-specify the particular aspects of performance of interest. Rather, we simply

assume that complex IS projects are undertaken to achieve goals of relevant stakeholders and that governance is undertaken to increase the likelihood of attaining these goals.

2.2 Context

Even though IS projects always carry some level of complexity and risk, some projects are particularly complex because of their scale, scope, novelty, and consequences. Because complexity can arise in many ways (Atkinson et al. 2006; Bakhshi et al. 2016), we provide an illustrative context to focus our account. As Figure 1 shows, the context we examine is governmental projects that follow a hub-spoke model in which multiple entities operate under a department's influence. Other contexts could also be studied (e.g., single-site, private sector cases), but hub-spoke models are common in many industries, e.g., regional development (Narayan 2007), road transportation (Klaas-Wissing and Albers 2010), air transportation (Darabi et al. 2013), healthcare (Yeow and Faraj 2011), and enterprise application software development (Huber et al. 2010), amongst others. In governmental contexts, such hub-spoke models are associated with major contemporary questions of public policy, i.e., the extent to which government services should be decentralized/devolved to the spokes (Dommett and Flinders 2014; Lægreid and Verhoest 2010).

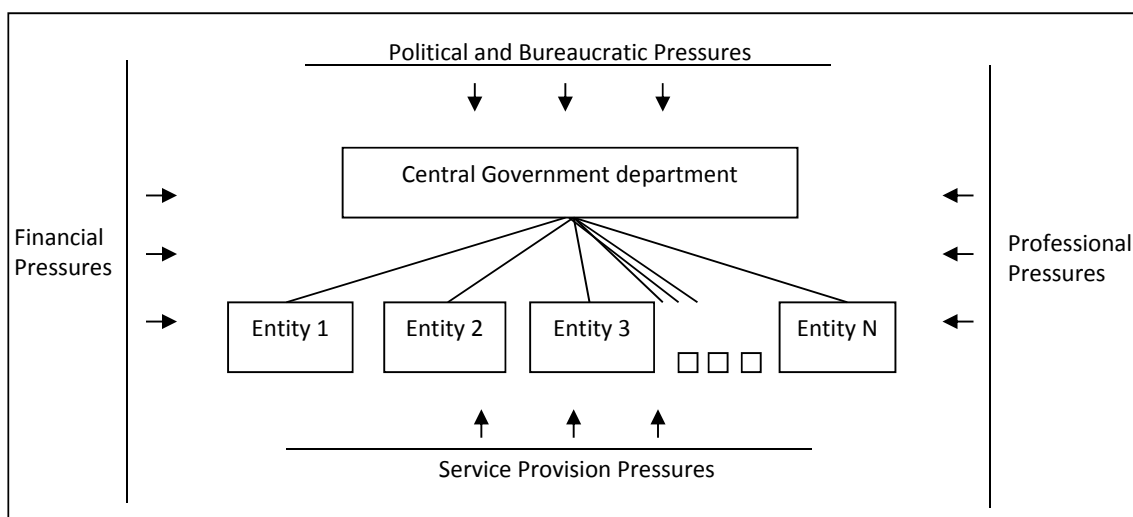


Figure 1: Illustrative Complex Project Context

In hub-spoke models, complexity arises due to the (1) number of entities, (2) differences among entities, (3) autonomy of the entities, (4) pressures facing the department and entities, and (5) nature of the IS project (e.g., the planned degree of integration across entities). For the purpose of the account we provide, therefore, we assume that we are studying a context in which there are a large number of entities having diverse interests and capabilities, where the entities have some (but not complete) autonomy from a central Government department, where all the parties are subjected to a range of pressures (as per Figure 1), and where the aim is to implement an integrated system across the entities for the benefit of the citizens of the region served by the Government.

2.3 Institutional theory

According to Thornton et al. (2012), institutional theory is best thought of not as a single static theory, but as an ongoing theoretical program with certain theoretical orienting strategies. Table 1 summarizes key ideas in the theory over time.

Table 1: Key Ideas in the Institutional Theory Research Program

Reference	Key Ideas
(Meyer and Rowan 1977)	To survive in an <i>institutional field</i> , organizations must conduct practices that are <i>legitimate</i> in that field. Such practices may differ from those the organization must perform to fulfil its technical mission. Thus, organizational success depends on <i>decoupling</i> the two sets of practices, so that both are performed without hindering each other.
(DiMaggio and Powell 1983)	Organizations achieve legitimacy by adopting similar structures to other organizations in their institutional field. Rather than being economically rational, this decision is rationalized, and is driven by power (<i>coercive</i> force), professional values (<i>normative</i> force), and by the tendency to copy others in situations of uncertainty (<i>mimetic</i> force).
(DiMaggio 1988)	While institutional theory can explain organizational homogeneity, it cannot explain how, once homogeneity is achieved, subsequent change occurs. Researchers can do so by bringing in concepts such as <i>agency, interests</i> , and <i>institutional entrepreneurship</i> .
(DiMaggio and Powell 1991)	Institutional theory does not sufficiently address culture or cognition. Researchers studying institutional (now neoinstitutional) theory should do so by considering <i>culture</i> and <i>cognition</i> , especially 'mindless' cognition, such as unconscious <i>scripts</i> and <i>habits</i> .
(Friedland and Alford 1991)	To explain the links between action and structure in organizations, researchers need to understand <i>how actors' interests are institutionally shaped</i> . Institutions also operate at <i>multiple levels of analysis</i> (individual, organization, society) and the contents of them can conflict, creating opportunities for actors to manipulate the conflict for their interests.
(Scott 1995)	Institutional <i>pillars</i> are the elements that support organizational continuity and constraint (e.g., regulations, norms, and culture and cognition). Institutional <i>carriers</i> are the

	repositories in which institutions are embedded, such as symbolic systems (e.g., laws, schema), relational systems (e.g., governance system), routines, and artifacts.
(Greenwood et al. 2010)	An organization's environment exhibits <i>institutional complexity</i> if the organization is subject to simultaneous pressures from multiple institutional logics. An organization's actions can sometimes be explained in terms of its attempts to deal with this complexity.
(Lawrence et al. 2011)	<i>Institutional work</i> refers to the practices of individuals and collective actors to create, maintain, or disrupt institutions. Studying institutional work can give researchers a deeper understanding of the nature of institutions and how they have their effects.
(Thornton et al. 2012)	An <i>institutional logic</i> refers to socially constructed symbols and practices ("including assumptions, value, and beliefs" p. 2) by which actors engage in sense-making, organize activities, and reproduce activities. Researchers studying institutional logics examine how individuals, organizations, and societies are constrained and enabled by the diverse sets of institutional logics that influence them and how these logics are in turn shaped over time.

As Table 1 indicates, institutional theory has evolved from explaining a limited set of outcomes (organizational homogeneity) by a simple mechanism (actors' efforts to maintain legitimacy in the face of common institutional forces) to a much wider set of outcomes (the full range of effects of actors' responses to institutional contexts) by a more complex mechanism (the full structural process through which logics affect actions, and are recreated by actions, in complex fields). In a sense, the theory has grown from a simple theory to a rich ontology. While it began as an attempt by sociologists to explain phenomena outside the boundaries of economic theory (as economic theory could not explain non-rational behaviour), its boundaries now overlap with and arguably extend beyond economic theory (as economic rationality is just one institutional logic that may affect actors in a particular context). Over time, it has evolved from a niche sociological theory to become arguably the dominant paradigm in organizational theory (Thornton et al. 2012).

IS researchers have used institutional theory for some time, e.g., to explain the adoption of practices due to the top-down effects of institutional forces (Ang and Cummings 1997; Chatterjee et al. 2002; Liang et al. 2007; Sia and Soh 2007). However, detailed theoretical investigations are rare (for an exception, see Gosain 2004) and many studies have used the older, narrower ideas in institutional theory rather than accounting for its newer ideas (Currie and Swanson 2009; Mignerat and Rivard 2009). An emerging body of work has

shown (or recommended) the potential of taking advantage of these recent ideas to explain complex institutional phenomena in IS settings (Baroody and Hansen 2012; Berente and Yoo 2012; Nielsen et al. 2014; Yeow and Faraj 2011). The aim of the next section is to follow this lead to provide an institutional theory account of the potential links between governance, alignment, and performance in the context of a complex IS project.

3. Theory

With reference to Figure 1, the starting assumption of the theory is that an integrated system is being implemented across the spokes (sites) of a hub-spoke model. Much like Sambamurthy and Zmud (1999) predicted that different factors would lead organizations to adopt centralized, decentralized, or mixed (federated) governance at a point in time, the theory we develop suggests that initial starting conditions as well as states that emerge over time will lead a complex hub-spoke project to move from a more centralized model to a more decentralized model and back again. The theory has three sets of propositions. The first set of propositions concerns the initial governance of the project by the hub and the problems that could lead it to lose control. The second set of propositions concerns the effects that could arise as power shifts to one of the spokes. The third set of propositions concerns our prediction that governance will later move back to the hub. To explain changes over time, the propositions involve a mix of process and variance elements (Burton-Jones et al. 2015). Table 2 summarizes the basic logic, which we discuss in detail in the following sections.

Table 2: Summary of the Propositions

Project element and actor		Process over time →						
Project approach/ stage		Starting point; common rollout	Trying to progress common rollout		Change to sequential rollout with lead spoke first (P6)		After go-live at lead spoke	
Actors' experiences and perceptions...	...hub	Project governance lies with hub (P1)		Loss of power (P3)	Social influence tactics (P5); overinvest in lead spoke (P7).		Project governance reverts back to hub (P11)	Greater governance complexity and frustration with progress (P13).
	...lead spoke			Gain of power (P3)	Despite change in power, old governance practices remain (P4). Appreciate support from hub but critique its influence (P5, P7).	Focus on their interests rather than other spokes and the hub, and focus on operations over strategy (P8). Key individuals work outside formal structure (P10)	Tensions between maintenance of system at lead spoke and implementations at other spokes (P11)	Experience frustration due to overlapping parts (maintenance and implementation) (P13)
	... other spokes					Less influence than earlier; role changes (P 9)	As above (P11). Also, gaming behaviour due to visibility of effects at lead spoke (P12)	Experience frustration (as above) (P13).
	... external stakeholders	Government supports initial model		Government changes governance (P3)			Government reconsiders governance (P13)	Government reconsiders funding (P14)
Outcomes (alignment and performance)		Too early to assess performance	Observed problems; hub blamed (P2)		Too early to assess performance (of new model)		Challenges to actual performance. Plus perceived vs. actual performance differ due to gaming (P12)	Focus on lead spoke's perceived performance; real performance affected by actors' actions outside formal governance structure (P14)
Institutional theory factors involved in making predictions		Actors' interests and taken for granted assumptions (P1)	Institutional complexity and institutional logic (P2)	Actors' interests and legitimacy seeking (P3)	Actors' taken for granted assumptions (P4) and interests and legitimacy seeking (P5-P7)	Actors' legitimacy seeking, rationalizing, and decoupling (P8, P9). Contradictions, norms, and mobilization (P10).	Actors' interests, taken for granted assumptions, and institutional responses (P11)	Actors' legitimacy-seeking, interests, and mobilization (P14)

* P = Proposition

3.1 First stage - Hub control

In a hub-spoke model, where a central Government department is the hub and the entities are the spokes, the implementation of an integrated system across the entities (in contrast to having unintegrated or disparate systems) can offer substantial benefits such as the ability to share transaction data among entities (e.g., when serving common customers) and to learn from data aggregated across the entities (e.g., for benchmarking). From an institutional perspective, we expect if a decision has been made to implement an integrated system across the spokes, project governance will initially be led by the hub (rather than the spokes). This is partly due to taken-for-granted assumptions and partly due to the agents' interests.

In terms of *taken-for-granted assumptions*, hub-spoke architectures in Government tend to be established based on the view that the hub is the party concerned with the common interests of the spokes and its role is to provide resources to support these common interests, whereas the spokes are established to concern themselves with the interests of their local activities and customers (Lægreid and Verhoest 2010). We therefore expect that it would be natural (i.e., taken-for-granted) if the hub rather than any individual spoke led the IS project.

In terms of *agents' interests*, the hub is likely to have additional reasons for wanting to govern the project. This is because even though all the parties can benefit from accessing aggregated data, the benefits are greater for organizations that have to make decisions based on more standardized (rather than local) data, which is naturally more the case at the level of the hub than the spokes (Goodhue et al. 1992). Having access to aggregated, standardized data also provide opportunities for the hub to exercise greater control over the spokes, so we expect it would have a desire to control the governance of the project too (Orlikowski 1991).

Proposition 1: If an integrated system is being implemented across the entities (spokes) in a hub-spoke model, the governance of the project will initially lie with the hub.

Even though we expect the governance of the project to be initially led by the hub, we expect the hub to have difficulty managing such a project due to institutional complexity.

Institutional complexity rises in this context if there are numerous, diverse spokes. As the number of spokes increase, logistical difficulties are likely to increase. For instance, delays are likely simply because of the time required to gain consensus amongst the large number of stakeholders involved. Likewise, the greater the diversity of the spokes, the more substantive difficulties we would expect in understanding, integrating, and meeting users' diverse requirements. These complexities arise regardless of the type of implementation. In the case of bespoke systems, these complexities impair the ability to design a system that fits users' work-processes; in the case of package implementations, the complexities impair the ability to configure the system appropriately for each site and to enact sufficient changes in work processes at each spoke (site) to fit to the new system.

Institutional complexity rises further if the balance of power in the institutional field is not in the hub's favour. This can occur if the prevailing political view (i.e., institutional logic) is that decentralization or devolution of power from a hub to its spokes is desirable, which has been a prevailing view in many liberal democracies recently (Dommett and Flinders 2014). While prevailing logics change over time (e.g., from centralization to decentralization and back again), such changes tend to occur in a wave-like or punctuated equilibrium manner because institutions tend to resist change (especially a loss of power) and, thus, external forces such as changes in government are often required to precipitate them (Dommett and Flinders 2014; Modell 2004). If a complex IS project is being governed by a hub in a context in which the spokes have greater power, we expect the hub is likely to have difficulty governing the project because it would have difficulty motivating the spokes to engage in activities that are in the collective's interest but not in their own (e.g., participating in requirements gathering and agreeing to local work-process changes).

For all of the above reasons, we expect that as institutional complexity increases during the project's initial stages, the hub will experience greater difficulties governing the IS

project. In line with broader findings in the IS literature, we predict that these challenges would then lead to observed problems (e.g., delays, budget overruns) (Nah and Lau 2001) which would then be attributed back to the hub due to its leadership role. *Ceteris paribus*, we would expect these problems to be self-reinforcing, i.e., challenges and problems lead to greater complexity, leading to more challenges and problems. In line with institutional theory, we predict that the rising awareness of problems would then lead to questions over the appropriate governance of the project going forward (Seo and Creed 2002).

Proposition 2: During the initial stages of the project in which the hub is in control of governance, the presence of institutional complexity will lead to: (a) ongoing challenges for the hub, (b) observed problems (such as delays or budget overruns), (c) attribution of failure by stakeholders in the institutional field to the hub's governance, and (d) questions over whether/how to change the governance of the project going forward.

Following from Proposition 2, we expect the Government to have to answer questions about how to proceed. Traditionally, there are two options (Pan et al. 2006): terminate the project or redirect/restructure it. Assuming the decision is to redirect/restructure it, we see two options in a hub-spoke context: (1) *substitution*: control over governance remains with the hub but the hub's responsibilities are outsourced, e.g., to a consulting firm or vendor, or (2) *inversion*: control over governance changes so that one or more of the spokes take greater responsibility and the hub takes more of a support role. Rather than having a universal preference for one or other option, institutional theory would predict that the choice would be driven by whichever strategy enhanced perceptions of the Government's legitimacy in its institutional field. Given that multi-site IT projects require significant resources (and given that such projects in governmental contexts are often subject to severe financial constraints, Rubin 2010), we predict that the choice is likely to be a 'high stakes' decision in that context, and given that the decision is triggered by problems/challenges, it is also likely to be influenced by a risk-reduction, loss-minimization frame (Fleischmann et al. 2014). That is, which option reduces the risk of the Government appearing to have mis-managed the project?

Ultimately, the choice could go either way, and we could use institutional theory to predict the subsequent trajectory of events under either option. However, for the purpose of this paper, we assume that the choice is made to take the second option (inversion). We expect this choice is more likely if two conditions are in place. First, it is likely if there is a power- and competence-hierarchy amongst the spokes, such that one of the spokes is a natural leader amongst the other spokes. In this case, institutional theory would predict that: (1) the leading spoke would have an *interest* in having greater control over the project, and (2) devolving power to the lead spoke could be perceived as *legitimate* in the institutional field due to that spoke's interest and competence.

Second, the choice of an inversion strategy is likely if the prevailing sentiment in the institutional field is that outsourcing is particularly risky or costly. Even though outsourcing is never universally better or worse – the benefits and costs depend on the context (Lee et al. 2004) – if there have been recent failures or scandals due to outsourcing in that institutional field (as can occur, e.g., Barney et al. 2009), we predict decision-makers would be inclined against outsourcing, particularly given that we expect them to use a risk-reduction, loss minimization frame of reference (Fleischmann et al. 2014). If the prevailing sentiment against outsourcing is negative or cautious, outsourcing providers would also be cautious about taking the role (and would price this uncertainty into their proposals) because of the risks they may be forced to bear (Dad Aundhe and Matthew 2009), further reducing the likelihood of the Government choosing the outsourcing strategy.

Proposition 3: If the Government considers restructuring the multi-site project in response to ongoing problems/challenge, it will choose an inversion strategy (devolving power to one of the spokes) if there is a natural leader amongst the spokes and if the prevailing sentiment in the institutional field is cautious of outsourcing.

3.2 Second stage - Spoke control

In this section, we provide an institutional theory account of the possible trajectory of

events once the lead-spoke takes control. We begin by noting that although Proposition 3 predicts a formal shift in power from the hub to a spoke, institutional theory would predict that the actual shift is likely to be affected by path dependence and agents' interests.

In terms of path dependence, there is likely to be a significant degree of continuity in project governance. We referred earlier to three dimensions of governance: leadership, structure, and decision-making processes (Bowen et al. 2007; ITGI 2007). Even if leadership devolves to the lead spoke, substantial continuity is likely in governance structures and decision-making processes. For instance, we expect the committee structures of the project to remain fairly similar and the method for raising information to the committees and using that information to make decisions to remain fairly similar (other than the lead spoke having more influence). We make these predictions because we expect that when the hub led the project, it would have instituted structures and methods that were generally taken-for-granted in that institutional field (DiMaggio and Powell 1983). We also expect the lead spoke's criticisms of the hub's governance to relate to the hub's lack of knowledge of the spokes' business (a traditional criticism of central agencies, Lægreid and Verhoest 2010) rather than due to its lack of knowledge of best practices in project management and governance.

Proposition 4: After the shift in governance from control by the hub to control by a lead-spoke, there will be a significant change in project leadership (with greater control by the lead-spoke) but less change in formal governance structures or decision-making processes.

In terms of agents' interests, we expect each actor (hub, lead spoke, other spokes) to negotiate and act in their own interests. We discuss each one in turn. First, regarding the *hub*, we expect key actors in the hub who previously had power over areas of the project and whose power is now devolved to the lead spoke will continue to exert influence beyond their formal (revised) responsibilities. We expect this because the reputation of all key individuals involved will be tainted if the project fails. Institutional theory stresses that actors seek to maintain legitimacy in their institutional field (DiMaggio and Powell 1991). Given the

reputational risk that could stem from failure, we expect individuals at the hub to be highly motivated to ensure the project's success despite lacking formal power. We expect their actions to involve a range of influence tactics (Sabherwal and Grover 2010), from contributing or withholding information to participating in and influencing decisions. We expect these actors to view their actions to be in the interests of the project. However, we expect members of the lead-spoke to view such actions as meddling and to trigger concerns about a lack of clarity in the governance structures and processes.

Proposition 5: After the shift in governance from control by the hub to control by a lead-spoke, key individuals in the hub will continue to exert influence beyond that expected by their role. They will view their attempts positively, but members at the site will have a less-positive perception and will claim that it impairs project governance.

In terms of the lead spoke's interest, we expect that when negotiating to take greater control over the project, the lead-spoke will emphasize its short-term interests over both its long-term interests and the interests of other parties (hub and spokes). We expect this to occur in several ways. First, if the project has not already adopted a sequential rollout, we expect the lead-spoke to recommend a sequential rollout across spokes, with the lead site going first, rather than a simultaneous rollout across spokes. This is in its short-term and long-term interest because it will increase the chance of a successful implementation. A sequential strategy ensures that it will receive the full attention of relevant parties (e.g., hub, consultants, vendor) for a period, and being first in the sequence ensures that it has greater control over configuration decisions and more-guaranteed funding (as funding is likely to be increasingly insecure over time due to changes in political cycles) (Rubin 2010). However, from a legitimacy-seeking perspective, we expect the lead-spoke to make concessions in its negotiation that are not in its long-term interests. In particular, we expect it to agree to an aggressive implementation time-table. This is for two reasons. First, we expect them, like most other organizations, to underestimate the work required (Akkermans and Helden 2002;

Umble et al. 2003). Second, given their leadership role amongst the spokes and their criticisms of the hub's progress, asking for a longer-than-expected time frame could be interpreted by others in the institutional field as an indication that they lack confidence or competence, i.e., a loss of face (Plate 2015). In short, we expect senior executives at the lead spoke to adopt a "we'll show them" mentality and agree to a tighter than desirable time-table.

Proposition 6: After the shift in governance from control by the hub to control by a lead-spoke, the lead-spoke will negotiate for a sequential rollout approach with it being the first implementation site with an aggressive implementation timeframe.

Agreeing to an aggressive time-line will have a number of consequences for the hub, lead-spoke, and other stakeholders. In terms of consequences for the hub, we expect the hub will invest substantial resources (time, talent, effort) in the lead-spoke's implementation, even more than required. This is because the Government's support (and funding) for the ongoing rollout is likely to depend on success in the first (and subsequent) implementations. Even if an initial failure could be overcome (Akkermans and Helden 2002), failure would still cost the hub (and lead-spoke) financially and harm their reputation. We expect that the resources invested by the hub in the lead-spoke's implementation will, in general, be beneficial, because it will provide the lead-spoke with greater resources. However, we expect this could also cause problems for the hub in the long-term because they may over-invest in the lead-spoke, leaving fewer resources for subsequent spokes. We also expect the heavy involvement of the hub in the lead-spoke's implementation will lead to ongoing claims at the lead-spoke about the lack of clarity regarding the hub's role in the project.

Proposition 7: After the shift in governance from control by the hub to control by a lead-spoke, the hub will invest more resources in the lead-spoke's implementation than formally required. This will lead to: (a) appreciation from the lead-spoke for the resources, (b) claims by the lead-spoke that the hub's involvement reduces the clarity of project governance, and (c) a shortage of resources later for the hub and other spokes.

In terms of consequences for the lead-spoke, we expect it to take several steps to implement the system within the aggressive timeline:

- First, we expect it to avoid changes to the system because changing software is known to increase risk and take time (Nah and Lau 2001).
- Second, we expect it to allow for optionality in the system's design. For instance, front-line users may be required to enter data into forms as part of their work. Where possible, we expect the lead-spoke to allow forms (or fields within forms) to be optional rather than mandatory (from the user's perspective), to make the system less restrictive and thus less likely to incite users' frustration and resistance (Lapointe and Rivard 2005). Of course, this strategy trades short-term gains for longer-term costs, as the system may not contain all of the information the lead-spoke needs or desires later (e.g., for aggregate reports).
- Third, we expect the lead-spoke to take shortcuts in requirements gathering and validation, testing, and training. However, to maintain legitimacy, we expect these shortcuts will not be evident in official documents. For instance, assume the hub follows a project management methodology in all its projects that requires users to be trained on the system before go-live. In such a case, we predict the lead-spoke would carry out the training and that the official documents would show this occurred. However, if we interviewed users, we predict they would say that the training was basic or rushed. This is just one example but the principle is that we predict the lead-spoke would take short-cuts while still 'ticking all the boxes.'
- Fourth, we expect the lead-spoke to focus on operational matters rather than strategic matters during system configuration and implementation. Ideally, executives would consider both strategic and operational issues (Henderson and Venkatraman 1993), but we expect there to be little time or patience amongst senior project members at the

lead-spoke to consider how to design or implement the system to achieve strategic objectives. Rather, we expect them to focus on getting the system in on-time and without obvious failure. We expect other issues to be left to the future, e.g., to a list of changes to be made after go-live.

- Fifth, we expect the lead-spoke to focus more on its own interest than the interests of the lead-spoke or the hub. The design of an integrated system requires individual units to agree to common ways of working despite knowing that the system will not meet some of their individual requirements (Goodhue et al. 1992). Even so, we expect the lead-spoke to make few concessions to other spokes. Given the lead-spoke's leadership role in the institutional field, we expect it to rationalize this decision based on the argument that 'it knows better' than other spokes. That is, in its view, the lead-spoke leads rather than follows the professional norms in that institutional field (DiMaggio and Powell 1983).

Proposition 8: After the shift in governance from control by the hub to control by a lead-spoke, the lead-spoke will shift the focus of governance from a focus on strategic issues and common interests to getting the system implemented in the lead-spoke on-time and without obvious failures. We expect this shift not to be evident in official documents, but to be evident when talking with representatives from the lead-spoke, hub, and other spokes.

In terms of consequences for other stakeholders, we highlight two stakeholders – other spokes and key individuals at the lead-spoke – and the institutional responses (Oliver 1991) we expect for each one. In terms of other spokes, we expect a shift in their participation in the project from active engagement to passive engagement and lobbying, partly due to their loss of control and partly due to a shift in their interests (DiMaggio and Powell 1991; Oliver 1991). In terms of control, when the hub controlled the project, we expect the hub would strive to have a broad representation of spokes in project decision-making (akin to a 'federated' governance structure, Weill and Ross 2004), to align with its institutional role of supporting all the spokes and to enable common interests and individual differences to be

identified and addressed (Goodhue et al. 1992). However, when the lead-spoke takes control, we expect (as per Proposition 8) that the lead-spoke would shift the focus to its own interest and would place professional pressure on other spokes to accept its decisions (Oliver 1991). To maintain legitimacy, we would also expect the lead-spoke to decouple its reduction of other spokes' *actual* influence from formal documentation *describing* their influence (Meyer and Rowan 1977). For example, official documents (e.g., committee terms of reference and formal sign-offs) are likely to continue to show representation from other spokes in the project governance.

We expect the lead-spoke will rationalize (Thornton et al. 2012) any reduction in other spokes' actual influence by arguing that their lesser influence is not because of a lack of power but simply because they have less knowledge of the system compared to the lead-spoke. Nonetheless, we expect representatives from other spokes will argue that the shift in control of the project led to a real reduction in their influence. We also expect that the focus of other spokes will shift from being actively engaged in the details of the project (e.g., systems design and implementation) to more of a lobbying role, focusing on their position in the sequence of planned rollouts or other similar issues that affect their ability to obtain funding before political cycles reduce or remove it (Rubin 2010).

Proposition 9: After the shift in governance from control by the hub to control by a lead-spoke, other spokes will have less influence on the project. Their focus will shift to lobbying relevant parties to ensure they still receive funding for their implementations.

While we focused above on the agency of organizations (hub, lead-spoke, other spokes), we expect key individuals to have influential roles too (Friedland and Alford 1991; Thornton et al. 2012). In particular, we expect key individuals to notice contradictions between their perception of how the project *could* have aligned with their interests and the *actuality* of the project implementation and to take action to influence the process to align more with their own interests (Seo and Creed 2002). For instance, we expect them to notice

that the project is focusing less on issues required for achieving long-term strategic objectives (as per Proposition 8), e.g., capturing the data required to answer important business questions and having the tools and capabilities to analyze the data appropriately (Chen et al. 2012).

For two reasons, we expect these individuals to be located at the lead-spoke. First, we expect a selection effect such that, on average, more-powerful and more-capable individuals in the institutional field work at the lead-spoke than other spokes. Second, given our expectation that the lead-spoke will focus the implementation on its own site first, we expect individuals at the lead-spoke to have more first-hand knowledge of the implementation than individuals at other spokes, and thus will be more aware than individuals at other spokes of contradictions between the project's potential and its actuality. While subject to the normative pressures of their profession, we expect key individuals at the lead-spoke to be less beholden to the normative pressures of a project management methodology or systems development approach (Thornton et al. 2012). Moreover, in line with institutional theory, we predict these key individuals will be unlikely to achieve change individually, but will do so by mobilizing resources (such as attention and effort) in a bottom-up manner from other individuals inside and outside the formal structures (Lawrence et al. 2011; Seo and Creed 2002). For instance, in the case of focusing insufficiently on data capture and data analytics, we would expect key individuals in the lead-spoke to create formal or informal working groups to examine the issue and influence the system's implementation to address the issue either before or after go-live. In the project team, the actions of these individuals will lead to mixed views (e.g., a mix of appreciation of their efforts and a concern that they are distracting attention and resources away from the more-important issue of getting the system implemented on time).

Proposition 10: After the shift in governance from control by the hub to control by a lead-spoke, key individuals at the lead-spoke will perceive a lack of focus on issues they believe are of strategic importance and they will mobilize resources (at least partly outside of the formal governance structure) to address these issues.

3.3 Third stage - Hub control

After go-live at the lead-spoke, attention will shift to the remaining implementations at other spokes. For several reasons, we expect the lead-spoke to relinquish leadership of the project and the hub (rather than other spokes) to retake it. On the one hand, in an institutional field with multiple independent entities (spokes), it would go against professional norms for one independent entity (e.g., lead-spoke) to control the implementation of a system at another independent entity (e.g., other spokes). In addition to lacking knowledge of other spokes' detailed work processes, the lead-spoke would lack legitimacy leading a project when it did not share the other spokes' interests. On this point, while all the spokes have institutional reasons to *display* respect for each other's interests (because of political sensitivities), incentives for *actual* support differ. While other spokes had an incentive to support the first implementation at the lead-spoke (because failure at the first site in the sequence could threaten the funding of future sites), the lead spoke does not have such incentives for others' success (because it already has the system implemented at its site regardless of other sites' success or failure). Thus, a logical solution after go-live at the lead-spoke is to shift the control of the project to the *next spoke* in the sequence of implementations.

On the other hand, given the shortcuts taken by the lead-spoke during implementation (per Proposition 8), we expect the lead-spoke will have to engage in substantial adaptive maintenance after go-live to achieve business-IT alignment (Heales 2002). Thus, we expect that even though it will not have an interest in controlling other spokes' implementations, we expect it will want influence over the division of resources between adaptive maintenance and implementation. Moreover, because changes to the design of an integrated system affect each of the sites using it, we also expect the lead-spoke to be resistant to other spokes making system changes during their implementations (because such changes could affect its own system and further divert attention and resources away from the resources it needs for

adaptive maintenance). For all these reasons, we expect the lead-spoke to be against any other spoke taking control.

The logical solution is for the hub to retake control. We expect this choice to be acceptable to most of the spokes because it is the only actor in the institutional field required to consider all of the spokes' interests. We also expect this choice to be desirable for the hub, as it would allow it to reinstate its assumed leadership role in the institutional field (Dommett and Flinders 2014).

Proposition 11: After go-live at the lead-spoke, control over governance will shift back from the lead-spoke to the hub. Tensions will be evident between requests for resources for adaptive maintenance at the lead-spoke and implementations at subsequent spokes.

The implementation of any information system is subject to uncertainty (Weick 1990). Thus, the go-live at the lead-spoke offers opportunities for all the actors in an institutional field to learn from the implementation and make sense of it in light of their own interests (Daft and Weick 1984). In a hub-spoke model, we especially expect spokes to take an interest in the impact of the system on their performance metrics vis-à-vis those of other spokes. In the public sector, within-group differences in performance can have major implications for funding and reputation in the field (Modell 2004). As noted earlier, the design of any integrated system requires each party to accept a less-than-optimal system for its own needs to obtain benefits that can emerge from a focus on common interests (Goodhue et al. 1992). We also noted earlier that the lead-spoke is likely to have designed the system to align with its interests (possibly against interests of other spokes). However, due to the uncertainty of system design (Weick 1990), we expect that some of its decisions will have unintentionally been against its interest, e.g., reducing its actual or perceived performance. We expect these consequences to result in gaming behaviour amongst the various spokes (Oliver 1991). That is, we expect subsequent spokes to request changes to the system that will allow them to increase their actual or perceived performance relative to the lead spoke, and we would also

expect them to resist implementing parts of the system that would reduce their perceived or actual performance relative to the lead-spoke. We would also expect the lead spoke to engage in efforts to counter other spokes' efforts in these regards, and we expect these gaming efforts will consume substantial resources from the hub and all of the spokes.

Proposition 12: After go-live at the lead-spoke, the effect of the system on the lead spoke's performance will start to emerge. The visibility of this information will lead to attempts by all the spokes to game the subsequent implementations and adaptive maintenance to optimise the system for their own actual or perceived performance vis-à-vis other spokes. This will consume substantial attention by all the parties.

The foregoing discussion suggests that the governance of the project will become increasingly complex and problematic over time even though the Government's original intention for shifting control from the hub to the lead-spoke was to *reduce* complexity and the problems it causes. In particular, we expect the net effect of the decision to shift control from the hub to the lead-spoke is that the lead-spoke will have a more successful implementation at its own site than it otherwise would have experienced, but that the project will subsequently be saddled with tensions between implementations and adaptive maintenance, gaming behaviour among spokes, and a lack of resources due to overinvesting in the implementation at the lead-spoke. As in Stage 1, we expect these complexities and problems will become self-reinforcing because effort and attention will be required to address them, reducing effort and attention available for implementations at each spoke. Accordingly, we expect the growing awareness of challenges will lead the Government to consider further changes in the project's governance.

Proposition 13: After go-live at the lead-spoke, the lead-spoke, hub, and other spokes, will express growing frustration with governance. Over time, these tensions will lead to a growing set of problems that will trigger the Government to reconsider the project's governance.

However, we expect the Government will need to consider different solutions to those in Stage 1. Specifically, we do not expect that outsourcing would be seen to be a legitimate

solution. We expect that if the Government agreed to outsource the project, it would risk losing face in the institutional field, as the decision could be interpreted as an admission that it should have chosen outsourcing originally. We also do not expect that control could be devolved to any other spoke. Other spokes would not have the same institutional legitimacy as the lead-spoke and the lead-spoke would likely be against other spokes taking control.

We expect two other options would be more legitimate. One option would be to try to tackle the root causes of the problems. This would likely require increasing the funding allocated to the project (to address the consequences that stemmed from originally agreeing to an overly ambitious timeframe) and reducing emphasis on between-spoke comparisons in the institutional field (to reduce gaming behavior among spokes). A second option would be to cancel the project (Pan et al. 2006). This second option could be perceived to be legitimate if the Government could frame the decision to align with its prior rhetoric (Heracleous and Barrett 2001), e.g., if it could claim that it is not really cancelling the project, but just deferring the implementation of the system at future spokes while it learns from the current implementations.

From the perspective of maintaining institutional reputation, we expect the hub and all the spokes would be in favour of the first option (addressing the root cause). However, given that this option would require increased funding, its choice would depend on the relevant funding cycles and the sentiment towards the project in the institutional field at that time (Rubin 2010). This sentiment would be determined by the sum of negative and positive news regarding the project. We expect decision-makers would focus especially on the effects of the implementation at the lead-spoke. From the perspective of negative news, it is possible that the lead-spoke could show a relatively unproblematic implementation. However, for the reasons outlined earlier (see Proposition 8), we expect it would be difficult for the lead-spoke to show substantial evidence of positive news, e.g., in terms of achieving strategic benefits.

We believe its ability to do so would depend on the success of the efforts of those key individuals at the lead spoke (see Proposition 10) who acted in an unsanctioned manner to pursue their own interests and mobilize others to achieve more-strategic objectives.

Proposition 14: At some point after go-live at the lead-spoke, the hub and spokes will need to lobby for more funding for future implementations. Their success will depend on the ability of the lead spoke to show a lack of negative effects from implementation coupled with the ability of key individuals at the lead-spoke to have demonstrated (possibly in an unsanctioned manner) strategic benefits from the implementation.

4. Discussion

In this paper, we have provided an account of the relationships between governance, alignment, and performance in the context of a complex IS project. Our arguments combine an interest in processes (in the movement among stages) as well as variables (in the factors that affect outcomes in each stage); we believe such a combined perspective is necessary to account for the dynamic context our theory attempts to shed light on (Burton-Jones et al. 2015). In keeping with an institutional perspective, our account reveals that concepts such as alignment and performance are institutionally complex. Different actors in an institutional field could have legitimately different views regarding what alignment means, what goal they are aligning to, and what performance objectives they are required to meet. Our account also reveals how important it would be in an empirical investigation of the theory to conduct in-depth studies (Cicmil et al. 2006; Pollack 2007) – to account not just for ‘official’ recordings of governance (e.g., official sign-offs and written governance structures) but also the actual enactment of both formal governance (e.g., how things actually occur in formal meetings) and informal governance (e.g., how key individuals mobilize resources outside formal structures).

The importance of having a better understanding of the links between governance, alignment, and performance, is well accepted (Joslin and Muller 2016; Liang et al. 2011). So too is the importance of considering the issues from a social theory perspective in contrast to more-prevalent approaches in the past, such as taking an economically-rational perspective or

taking an atheoretic approach (Jacobson 2009; Westphal and Zajac 2013). To give one example, the IS field has learned a great deal from knowledge-based perspectives on governance that show how governance structures and outcomes can be explained by broad differences in knowledge between different actors in a project team (e.g., knowledge of applications versus knowledge of infrastructure) (Tiwana 2009; Tiwana and Kim 2015). Although the knowledge-based perspective has proven useful, it implicitly assumes that decision-making rights, and the knowledge required to make the decisions, are clear. What if they are uncertain and contested? The knowledge-based perspective is less likely to apply in such cases. However, uncertainties and dialectics are prevalent in reality (Benbya and McKelvey 2006; Mitchell 2009) and the presence of persistent uncertainties could potentially explain why so many large projects spiral into difficulties (Flyvbjerg et al. 2009; Nelson 2005). In such cases, we expect that institutional accounts such as the one offered here are likely to be valuable.

The account that we offer has been tailored to a specific type of context. A limitation of this approach is that our account cannot apply to all complex contexts. We tried to find a mid-level of abstraction rather than choosing a context that is too narrow or too all-encompassing. It is difficult to pick the right level of abstraction but we hope that by clearly describing the context we chose, researchers and practitioners interested in this context will gain insights from the account we offer (Johns 2006; Ramiller and Pentland 2009). For practitioners, we also hope our theoretical account offers insights that complement and go beyond the atheoretic account that is more common in practice (e.g., using industry standards and maturity models) (Orozco et al. 2015; Simonsson et al. 2010).

In addition to focusing on one context, our account is limited in several other ways. For instance, we only examined a subset of actors relevant in this context. In particular, we gave scant attention to vendors and consultants other than examining whether control of the

project would be outsourced to them. In reality, even if control is not outsourced to a consultant or vendor, they can still have a major influence on the project and its governance. A full account would consider their role in more depth (Liu and Yuliani 2016). Likewise, we also only considered a subset of the possibilities that could transpire in this context. A full account would examine other possibilities (e.g., what events would transpire if the project was outsourced at the end of Stage 1? What events would transpire if the project was cancelled at the end of Stage 3?). Another limitation is that we only used a limited set of ideas from institutional theory. If we had drawn on more of the theory's ideas, we could have shown the power of the theory more strongly. For instance, concepts such as *theorization* could be used to understand how different stakeholders make sense, and give sense to others, regarding the nature of the system being implemented and how best to govern it (Nielsen et al. 2014). We also artificially limit our account by looking at institutional theory alone. Institutional theory can be used together with several other social theories (such as practice theory, amongst others) (Thornton et al. 2012) and it would be valuable to combine or contrast the insights we offer here with other such theories (Floricel et al. 2014). Finally, we did not discuss how the theory might be tested. Such a test would require a longitudinal design over enough time to allow for the purported processes to occur (or not). It is likely that a grounded theory study could be particularly useful because researchers could start with the theoretical ideas discussed here but extend them through close-up observations in the field and analysis of field data.

5. Conclusion

Motivated by the opportunity to improve accounts of the links between governance, alignment, and performance, we have offered a theory to explain their interrelationships in the context of a complex IS project. In addition to its specific predictions, the theory we developed reveals three overall insights. First, governance, alignment, and performance are

all socially constructed and change and evolve over time. Second, seemingly rational attempts to improve governance, alignment, and performance can end up, unintentionally, impairing each of them. Third, the performance outcomes that are influential in an institutional field are likely to be those wrought by the actions of key individuals operating in spite of, and outside of, formal governance structures. Despite acknowledged limitations, we believe the account we offer provides useful insights for researchers and practitioners working on complex IS projects.

References

- Akkermans, H., and Helden, K. V. "Vicious and Virtuous Cycles in ERP Implementation: A Case Study of Interrelations between Critical Success Factors," *European Journal of Information Systems* (11:35-46) 2002.
- Ang, S., and Cummings, L. L. "Strategic Responses to Institutional Influences on Information Systems Outsourcing," *Organization Science* (8:3), June 1997, pp 235-256.
- Atkinson, R., Crawford, L., and Ward, S. "Fundamental Uncertainties in Projects and the Scope of Project Management," *International Journal of Project Management* (24:8) 2006, pp 687-698.
- Badewi, A., and Shehab, E. "The Impact of Organizational Project Benefits Management Governance on ERP Project Success: Neo-Institutional Theory Perspective," *International Journal of Project Management* (34) 2016, pp 412-428.
- Bakhshi, J., Ireland, V., and Gorod, A. "Clarifying the Project Complexity Construct: Past, Present, and Future," *International Journal of Project Management* (34) 2016, pp 1199-1213.
- Barley, S. R. "Technology as an Occasion for Structuring: Evidence from Observations of CT Scanners and the Social Order of Radiology Departments," *Administrative Science Quarterly* (31), March 1986, pp 78-108.
- Barney, H. T., Low, G. C., and Aurum, A. "The Morning After: What Happens When Outsourcing Relationships End?," in: *Information Systems Development*, G.A. Papadopoulos (ed.), Springer, 2009, pp. 637-644.
- Baroody, A. J., and Hansen, S. W. "Changing Perspectives: Institutional Logics of Adoption and Use of Health Information Technology," in: *Proceedings of the 33rd International Conference on Information Systems*, Orlando, 2012, pp. 1-18.
- Benbya, H., and McKelvey, B. "Towards a Complexity Theory of Information Systems Development," *Information Technology and People* (19:1) 2006, pp 12-34.
- Berente, N., and Yoo, Y. "Institutional Contradictions and Loose Coupling: Postimplementation of NASA's Enterprise Information System," *Information Systems Research* (23:2) 2012, pp 376-396.
- Bowen, P. L., Cheung, M.-Y. D., and Rohde, F. H. "Enhancing IT Governance Practices: A Model and Case Study of an Organization's Efforts," *International Journal of Accounting Information Systems* (8) 2007, pp 191-221.
- Burton-Jones, A., McLean, E., and Monod, E. "Theoretical Perspectives in IS Research: From Variance and Process to Conceptual Latitude and Conceptual Fit," *European Journal of Information Systems* (24:6) 2015, pp 664-679.

- Chan, Y. E., and Reich, B. H. "IT Alignment: What Have We Learned?," *Journal of Information Technology* (22) 2007, pp 297-315.
- Chatterjee, D., Grewal, R., and Sambamurthy, V. "Shaping Up for E-Commerce: Institutional Enablers of the Organizational Assimilation of Web Technologies," *MIS Quarterly* (26:2), June 2002, pp 65-89.
- Chen, H., Chiang, R. H. L., and Storey, V. C. "Business Intelligence and Analytics: From Big Data to Big Impact," *MIS Quarterly* (36:4), Dec 2012, pp 1165-1188.
- Choudhury, V., and Sabherwal, R. "Portfolios of Control in Outsourced Software Development Projects," *Information Systems Research* (14:3), Sept 2003, pp 291-314.
- Chua, C. E. H., Lim, W.-K., Soh, C., and Sia, S. K. "Enacting Clan Control in Complex IT Projects: A Social Capital Perspective," *MIS Quarterly* (36:2), June 2012, pp 577-602.
- Cicmil, S., Williams, T., Thomas, J., and Hodgson, D. "Rethinking Project Management: Researching the Actuality of Projects," *International Journal of Project Management* (24) 2006, pp 675-686.
- Currie, W. L., and Swanson, E. B. "Special Issue on Institutional Theory in Information Systems Research: Contextualizing the IT Artefact," *Journal of Information Technology* (24:4), Dec 2009, pp 283-285.
- Dad Aundhe, M., and Matthew, S. K. "Risks in Offshore IT Outsourcing: A Service Provider Perspective," *European Management Journal* (27:6) 2009, pp 418-428.
- Daft, R. L., and Weick, K. E. "Toward a Model of Organizations as Interpretation Systems," *Academy of Management Review* (9:2) 1984, pp 284-295.
- Darabi, H. R., Mansouri, M., and Gorod, A. "Governance of Enterprise Transformation: Case Study of the FAA NextGen Project," in: *Proceedings of the 8th International Conference on System of Systems Engineering*, IEEE, 2013, pp. 261-266.
- Davis, K. "Different Stakeholder Groups and their Perceptions of Project Success," *International Journal of Project Management* (32:2) 2014, pp 189-201.
- De Haes, S., and Grembergen, W. V. "An Exploratory Study into IT Governance Implementation and its Impact on Business/IT Alignment," *Information Systems Management* (26:2) 2009, pp 123-137.
- Dhaliwal, J., Onita, C. G., Poston, R., and Zhang, X. P. "Alignment within the Software Development Unit: Assessing Structural and Relational Dimensions Between Developers and Testers," *Journal of Strategic Information Systems* (20:4) 2011, pp 323-342.
- DiMaggio, P. J. "Interest and Agency in Institutional Theory," in: *Institutional Patterns and Organizations: Culture and Environment*, L.G. Zucker (ed.), Ballinger, Cambridge MA, 1988, pp. 3-21.
- DiMaggio, P. J., and Powell, W. W. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields," *American Sociological Review* (48) 1983, pp 147-160.
- DiMaggio, P. J., and Powell, W. W. "Introduction," in: *The New Institutionalism in Organizational Analysis*, W.W. Powell and P.J. DiMaggio (eds.), University of Chicago Press, Chicago, 1991, pp. 1-40.
- DOD "Complex Project Manager Competency Standards," *Department of Defence, Australian Government* (Version 4.1) 2012.
- Dommett, K., and Flinders, M. "The Centre Strikes Back: Meta-Governance Delegation, and the Core Executive in the United Kingdom, 2010-2014," *Public Administration* (93:1), March 2014, pp 1-16.
- Fleischmann, M., Amirpur, M., Benlian, A., and Hess, T. "Cognitive Biases in Information Systems Research: A Scientometric Analysis," in: *Proceedings of the 22nd European Conference on Information Systems*, Tel Aviv, Israel, 2014.

- Florichel, S., Bonneau, C., Aubry, M., and Sergi, V. "Extending Project Management Research: Insights from Social Theories," *International Journal of Project Management* (32) 2014, pp 1092-1107.
- Flyvbjerg, B., Garbuio, M., and Lovallo, D. "Delusion and Deception in Large Infrastructure Projects: Two Models for Explaining and Preventing Executive Disaster," *California Management Review* (51:2) 2009, pp 170-193.
- Fox, N. J., and Ward, K. J. "What Governs Governance, and How Does it Evolve? The Sociology of Governance-in-action," *The British Journal of Sociology* (59:3) 2008, pp 519-538.
- Friedland, R., and Alford, R. "Bringing Society Back In," in: *The New Institutionalism in Organizational Analysis*, W.W. Powell and P.J. DiMaggio (eds.), University of Chicago Press, Chicago, 1991, pp. 232-263.
- Gerow, J. E., Grover, V., Thatcher, J. B., and Roth, K. "Looking Toward the Future of IT-Business Strategic Alignment through the Past: A Meta-Analysis," *MIS Quarterly* (38:4), Dec 2014, pp 1159-1185.
- Gerow, J. E., Thatcher, J. B., and Grover, V. "Six Types of IT-Business Strategic Alignment: An Investigation of the Constructs and their Measurements," *European Journal of Information Systems* (24:5) 2015, pp 465-491.
- Goodhue, D., Wybo, M. D., and Kirsch, L. "The Impact of Data Integration on the Costs and Benefits of Information Systems," *MIS Quarterly* (16:3), Sept 1992, pp 293-311.
- Gosain, S. "Enterprise Information Systems as Objects and Carriers of Institutional Forces: The New Iron Cage?," *Journal of the Association for Information Systems* (5:4), April 2004, pp 151-182.
- Greenwood, R., Diaz, A. M., Li, S. X., and Lorente, J. C. "The Multiplicity of Institutional Logics and the Heterogeneity of Organizational Responses," *Organization Science* (21) 2010, pp 521-539.
- Heales, J. "A Model of Factors Affecting an Information System's Change in State," *Journal of Software Maintenance* (14:6) 2002, pp 409-427.
- Henderson, J. C., and Venkatraman, N. "Strategic Alignment: Leveraging Information Technology for Transforming Organizations," *IBM Systems Journal* (32:1) 1993, pp 472-484.
- Heracleous, L., and Barrett, M. "Organizational Change as Discourse: Communicative Actions and Deep Structures in the Context of Information Technology Implementation," *Academy of Management Journal* (44:4) 2001, pp 755-776.
- Huber, T., Kude, T., and Dibbern, J. "Enterprise Application Software Industry -- An Exploratory Case Study," in: *Proceedings of the 16th Americas Conference on Information Systems*, Lima, Peru, 2010, pp. 1-9.
- ITGI "Board Briefing on IT Governance," *IT Governance Institute* (available online: downloaded from http://www.isaca.org/restricted/Documents/26904_Board_Briefing_final.pdf) 2003, pp 1-66.
- ITGI *COBIT 4.1: Framework, Control Objectives, Management Guidelines, Maturity Models* IT Governance Institute, Meadows, IL, 2007.
- Jacobson, D. D. "Revisiting IT Governance in the Light of Institutional Theory," in: *Proceedings of the 42nd Hawaii International Conference on System Sciences*, IEEE, Hawaii, 2009, pp. 1-9.
- Johns, G. "The Essential Impact of Context on Organizational Behavior," *Academy of Management Review* (31:2) 2006, pp 386-408.
- Joslin, R., and Muller, R. "The Relationship between Project Governance and Project Success," *International Journal of Project Management* (34) 2016, pp 613-626.

- Jugdev, K., and Muller, R. "A Retrospective Look at our Evolving Understanding of Project Success," *Project Management Journal* (36:4) 2005, pp 19-31.
- Karpovsky, A., and Galliers, R. "Aligning in Practice: From Current Cases to a New Agenda," *Journal of Information Technology* (30) 2015, pp 136-160.
- Kirsch, L. "The Management of Complex Tasks in Organizations: Controlling the Systems Development Process," *Organization Science* (7:1) 1996, pp 1-21.
- Klaas-Wissing, T., and Albers, S. "Cooperative versus Corporate Governance of LTL Networks," *International Journal of Logistics Research and Applications* (13:6) 2010, pp 493-506.
- Koh, A., and Crawford, L. "Portfolio Management: The Australian Experience," *Project Management Journal* (43:6) 2012, pp 33-42.
- Lægred, P., and Verhoest, K. (eds.) *Governance of Public Sector Organizations: Proliferation, Autonomy, and Performance*. Palgrave Macmillan, Hampshire, UK, 2010.
- Langley, A., Smallman, C., Tsoukas, H., and Van de Ven, A. "Process Studies of Change in Organizations and Management: Unveiling Temporality, Activity, and Flow," *Academy of Management Journal* (56:1) 2013, pp 1-13.
- Lapointe, L., and Rivard, S. "A Multilevel Model of Resistance to Information Technology Implementation," *MIS Quarterly* (29:3), Sept. 2005, pp 461-491.
- Lawrence, T. B., Suddaby, R., and Leca, B. "Institutional Work: Refocusing Institutional Studies of Organizations," *Journal of Management Inquiry* (20) 2011, pp 52-58.
- Lee, J.-N., Miranda, S. M., and Kim, Y.-M. "IT Outsourcing Strategies: Universalistic, Contingency, and Configurational Explanations of Success," *Information Systems Research* (15:2) 2004, pp 110-131.
- Liang, H., Niles, S., Hu, Q., and Xue, Y. "Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management,," *MIS Quarterly* (31:1) 2007, pp 59-87.
- Liang, T.-P., Chiu, Y. C., Wu, S. P., and Straub, D. "The Impact of IT Governance on Organizational Performance," in: *Proceedings of the Americas Conference on Information Systems*, 2011.
- Liu, J. Y.-C., and Yuliani, A. R. "Differences between Clients' and Vendors' Perceptions of IT Outsourcing Risks: Project Partnering as the Mitigation Approach," *Project Management Journal* (47:1) 2016, pp 45-58.
- Luftman, J., and Derksen, B. "Key Issues for IT Executives 2012: Doing More with Less," *MIS Quarterly Executive* (11:4), Dec 2012, pp 207-218.
- March, J. G., and Sutton, R. I. "Organizational Performance as a Dependent Variable," *Organization Science* (8:6) 1997, pp 698-706.
- Meyer, J. W., and Rowan, B. "Institutionalized Organizations: Formal Structure as Myth and Ceremony," *American Journal of Sociology* (83) 1977, pp 340-363.
- Mignerat, M., and Rivard, S. "Positioning the Institutional Perspective in Information Systems Research," *Journal of Information Technology* (24:4), Dec 2009, pp 369-391.
- Miller, C. C., Washburn, N. T., and Glick, W. H. "The Myth of Firm Performance," *Organization Science* (24:3) 2013, pp 948-964.
- Mitchell, S. D. *Unsimple Truths: Science, Complexity, and Policy* University of Chicago Press, Chicago, 2009.
- Modell, S. "Performance Measurement Myths in the Public Sector: A Research Note," *Financial Accountability and Management* (20:1), Feb 2004, pp 39-55.
- Nah, F. F.-H., and Lau, J. L.-S. "Critical Factors for Successful Implementation of Enterprise Systems," *Business Project Management Journal* (7:3) 2001, pp 285-296.

- Narayan, G. "Addressing the Digital Divide: E-Governance and M-Governance in a Hub and Spoke Model," *The Electronic Journal of Information Systems in Developing Countries* (31:1) 2007, pp 1-14.
- Nelson, R. R. "Project Retrospectives: Evaluating Project Success, Failure, and Everything In Between," *MIS Quarterly Executive* (4:3) 2005, pp 361-372.
- Neves, F. G., Borgman, H., and Heier, H. "Success Lies in the Eye of the Beholder: The Mismatch between Perceived and Real IT Project Management Performance," in: *Proceedings of the 49th Hawaii International Conference on System Sciences*, IEEE, Hawaii, 2016.
- Nielsen, J. A., Mathiassen, L., and Newell, S. "Theorization and Translation in Information Technology Institutionalization: Evidence from Danish Home Care," *MIS Quarterly* (38:1), March 2014, pp 165-186.
- Oliver, C. "Strategic Responses to Institutional Processes," *Academy of Management Review* (16:1), Jan 1991, pp 145-179.
- Orlikowski, W. J. "Integrated Information Environment or Matrix of Control? The Contradictory Implications of Information Technology," *Accounting, Management and Information Technologies* (1:1) 1991, pp 9-42.
- Orozco, J., Tarhini, A., and Tarhini, T. "A Framework of IS/Business Alignment Management Practices to Improve the Design of IT Governance Architectures," *International Journal of Business and Management* (10:4) 2015.
- Pan, G., Pan, S. L., Newman, M., and Flynn, D. "Escalation and De-Escalation of Commitment: A Commitment Transformation Analysis of an e-Government Project," *Information Systems Journal* (16:1), Jan 2006, pp 3-21.
- Plate, M. "Shame and the Undoing of Leadership--An Analysis of Shame in Organizations," in: *New Ways of Studying Emotions in Organizations; Research on Emotions in Organizations (Vol. 11)*, C.E.J. Hartel, W.J. Zerbe and N.M. Ashkanasy (eds.), Emerald Group Publishing, 2015, pp. 81-107.
- Pollack, J. "The Changing Paradigms of Project Management," *International Journal of Project Management* (25:3) 2007, pp 266-274.
- Ramiller, N. C., and Pentland, B. T. "Management Implications in Information Systems Research: The Untold Story," *Journal of the Association for Information Systems* (10:6), June 2009, pp 474-494.
- Reich, B. H., and Benbasat, I. "Factors that Influence the Social Dimension of Alignment between Business and Information Technology Objectives," *MIS Quarterly* 2000, pp 81-113.
- Rubin, I. S. *The Politics of Public Budgeting: Getting and Spending, Borrowing and Balancing* CQ Press (Sage), Washington DC, 2010.
- Sabherwal, R., and Grover, V. "A Taxonomy of Political Processes in Systems Development," *Information Systems Journal* (20:5), Sept 2010, pp 419-447.
- Sambamurthy, V., and Zmud, R. W. "Arrangements for Information Technology Governance: A Theory of Multiple Contingencies," *MIS Quarterly* (23:2), Jun 1999, pp 261-290.
- Samset, K., and Volden, G. H. "Front-end Definition of Projects: Ten Paradoxes and Some Reflections Regarding Project Management and Project Governance," *International Journal of Project Management* (34) 2016, pp 297-313.
- Schlosser, F., Beimborn, D., Weitzel, T., and Wagner, H. T. "Achieving Social Alignment between Business and IT: An Empirical Evaluation of the Efficacy of IT Governance Mechanisms," *Journal of Information Technology* (30:2) 2015, pp 119-135.
- Scott, W. R. *Institutions and Organizations* Sage, Thousand Oaks, CA, 1995.

- Seo, M.-G., and Creed, W. E. D. "Institutional Contradictions, Praxis, and Institutional Change: A Dialectical Perspective," *Academy of Management Review* (27:2) 2002, pp 222-247.
- Sia, S. K., and Soh, C. "An Assessment of Package-Organisation Misalignment: Institutional and Ontological Structures," *European Journal of Information Systems* (16:5) 2007, pp 568-583.
- Simonsson, M., Johnson, P., and Ekstedt, M. "The Effect of IT Governance Maturity on IT Governance Performance," *Information Systems Management* (27) 2010, pp 10-24.
- Soderlund, J. "Building Theories of Project Management: Past Research, Questions for the Future," *International Journal of Project Management* (22) 2004, pp 183-191.
- Thornton, P. H., Ocasio, W., and Lounsbury, M. *The Institutional Logics Perspective: A New Approach to Culture, Structure, and Process* Oxford University Press, New York, 2012.
- Tiwana, A. "Governance-Knowledge Fit in Systems Development Projects," *Information Systems Research* (20:2) 2009, pp 180-197.
- Tiwana, A., and Kim, S. K. "Discriminating IT Governance," *Information Systems Research* (26:4), Dec 2015, pp 656-674.
- Tsoukas, H. "What is Management? An Outline of a Metatheory," *British Journal of Management* (5) 1994, pp 289-301.
- Turner, J. R. "Towards a Theory of Project Management: The Nature of the Project Governance and Project Management," *International Journal of Project Management* (24) 2006, pp 93-95.
- Umble, E. J., Haft, R. R., and Umble, M. M. "Enterprise Resource Planning: Implementation Procedures and Critical Success Factors," *European Journal of Operational Research* (146:2) 2003, pp 241-257.
- Van Grembergen, W., and De Haes, S. "A Research Journey into Enterprise Governance of IT, Business/IT Alignment and Value Creation," *International Journal of IT/Business Alignment and Governanec* (1:1) 2010, pp 1-13.
- Vessey, I., and Ward, K. "The Dynamics of Sustainable IS Alignment: The Case for IS Adaptivity," *Journal of the Association for Information Systems* (14:6) 2013.
- Wagner, E. L. "Evolution of Business-IT Alignment over Time: A Situated Change Perspective," in: *Proceedings of the 47th International Annual Hawaii International Conference on System Sciences*, IEEE, Hawaii, 2014, pp. 4366-4375.
- Wagner, H. T., Beimborn, D., and Weitzel, T. "How Social Capital Among Information Technology and Business Units Drives Operational Alignment and IT Business Value," *Journal of Management Information Systems* (31:1) 2014, pp 241-272.
- Weick, K. E. "Technology as Equivoque: Sensemaking in New Technologies," in: *Technology and Organizations*, P.S. Goodman and L.S. Sproull (eds.), Jossey-Bass, San Francisco, 1990, pp. 1-44.
- Weill, P., and Ross, J. W. *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results* Harvard University Press, Cambridge, MA, 2004.
- Westphal, J. D., and Zajac, E. J. "A Behavioral Theory of Corporate Governance: Explicating the Mechanisms of Socially Situated and Socially Constituted Agency," *The Academy of Management Annals* (7:1) 2013, pp 607-661.
- Wiener, M., Mahrng, M., Remus, U., and Saunders, C. "Control Configuration and Control Enactment in Information Systems Projects: Review and Expanded Theoretical Framework," *MIS Quarterly* (40:3) 2016, pp 741-774.
- Yeow, A., and Faraj, S. "Microprocesses of Healthcare Technology Implementation under Competing Institutional Logics," in: *Proceedings of the 32nd International Conference on Information Systems*, Shanghai, China, 2011, pp. 1-10.