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Abstract

In order to cut costs and gain access to specialized technical expertise, organizations often outsource some of their information systems development projects. While the globalization of exchanges has helped facilitate the adoption of this practice, research on this topic has identified a number of potential hinderers that can threaten their success and applied a variety of theoretical lenses to their study. Within this context, we propose a theoretically grounded process model to explain events occurring during the course of outsourced information systems development projects. To do so, we follow an inductive approach that integrates a variety of theoretical lenses and rely on different sources to provide examples of our arguments in the form of illustrative vignettes. We rely on institutional theory to characterize the systems development and project management practices in place at the client and provider and argue that these practices either focus primarily on the control or coordination mechanisms in place for the project, thereby defining different forms of contracts between parties. We then study the conflicts that may occur between these practices before and during the project and posit that there are processes that can be used to try and resolve them. Finally, we identify the impact these processes can have on the project both in terms of process and potential outcome, thereby influencing the contracts in place between parties in the form of a feedback effect that effectively demonstrates the dynamic nature of outsourced information systems development projects.

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A PROCESS MODEL OF OUTSOURCED INFORMATION SYSTEMS DEVELOPMENT PROJECTS

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ABSTRACT

In order to cut costs and gain access to specialized technical expertise, organizations often outsource some of their information systems development projects. While the globalization of exchanges has helped facilitate the adoption of this practice, research on this topic has identified a number of potential hinderers that can threaten their success and applied a variety of theoretical lenses to their study. Within this context, we propose a theoretically grounded process model to explain events occurring during the course of outsourced information systems development projects. To do so, we follow an inductive approach that integrates a variety of theoretical lenses and rely on different sources to provide examples of our arguments in the form of illustrative vignettes. We rely on institutional theory to characterize the systems development and project management practices in place at the client and provider and argue that these practices either focus primarily on the control or coordination mechanisms in place for the project, thereby defining different forms of contracts between parties. We then study the conflicts that may occur between these practices before and during the project and posit that there are processes that can be used to try and resolve them. Finally, we identify the impact these processes can have on the project both in terms of process and potential outcome, thereby influencing the contracts in place between parties in the form of a feedback effect that effectively demonstrates the dynamic nature of outsourced information systems development projects.

INTRODUCTION

Organizations increasingly rely on one another to produce goods and services, and the domain of information systems development (ISD) is not an exception to this trend. While joining forces to reach out for technical expertise and to cut costs to develop a system is becoming more common, the challenges and issues faced by the parties involved in achieving a common goal can be daunting. Indeed, outsourced information systems development (OISD) projects are subject to a variety of hinderers that can threaten their course (e.g., Ågerfalk, Fitzgerald, Olsson, & Conchúir, 2008; Frank, 2005; Kliem, 2004) or the project's outcome itself (e.g., Natovich, 2003) and calls have been made to improve our understanding of this complex phenomenon (Sabherwal, 2008). Building on extant OISD literature and adopting an institutional perspective, we propose a process model to explain events that can hinder or enable the course and outcome of these projects.

In an OISD project, parties must agree on a series of deliverables that must meet certain predetermined criteria to develop a piece of software. Developing software involves two major categories of activities: (1) systems development activities (e.g., analysis, design and programming); and (2) project management activities (e.g., risk assessment, allocation of human resources). Here, we limit our discussion to projects where two parties are involved in at least one of these categories of activities and must have regular exchanges to see that deliverables meet their specifications. We suggest that the practices in place within each party can be studied from an institutional perspective to identify their pillars and diffusion carriers as a set of initial conditions that shape the agreement between parties. This input further translates into written and unwritten agreements in the form of legal, implied and psychological contracts that create expectations that bind parties more or less formally to each other regarding the process and

outcome of the project. From an institutional perspective, the practices of each party may be incompatible. We suggest that these conflicting institutional demands (e.g., Pache & Santos, 2010) may create breaches in the contracts between the parties and that different responses (Oliver, 1991) such as manipulation or compromise can be used to try and resolve them. These resolution processes and their outcomes further carry an impact on the contracts between parties which evolve throughout the execution of the project.

Our work considers OISD projects as complex, dynamic processes that are based on each party's institutional logic of action. These in turn drive the emergence and evolution of different forms of contracts between parties and help explain the occurrence of events during the course of the project and their impact on its execution. Our main contribution to the literature on OISD projects is to provide a comprehensive process theorization to better grasp the scope of events that occur prior and during the course of a project and to consider feedback effects that may play an important part in further hindering or enabling its course. Before introducing our model, we review extant literature on OISD projects. We then present our process model and illustrate it with vignettes culled from the literature. Finally we discuss the implications of our model for future research in this context and provide concluding remarks.

EXTANT LITERATURE

Our literature review focuses on studies pertaining to OISD projects hinderers. We searched three online databases (ProQuest, EBSCOHost, and IEEE Xplore) and queried article abstracts and titles to find content geared specifically to the context of our study. We report on these categories of hinderers and discuss some of the most common theoretical perspectives found in this body of literature.

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The most prevalent theme found in the literature is communication. Whether it stems from difficulties understanding one another due to different norms and values (e.g., Arnott, Jirachiefpattana, & O'Donnell, 2007; Petkova & Petkov, 2003; Wareham, Mahnke, Peters, & Bjorn-Andersen, 2007), development approaches (Gopal, Mukhopadhyay, & Krishnan, 2002; Jarvenpaa & Mao, 2008; Nicholson & Sahay, 2001), or based on the interpretation of the exchanges between parties (e.g., Ang & Toh, 1998; Choudhury & Sabherwal, 2003; Kliem, 2004), lack of communication or difficulties in communicating can severely impact the course of a project. Moreover, some of these difficulties can be aggravated due to technical infrastructure issues (Jones, 1994; Sakthivel, 2007) that prevent rich and timely communication between parties, or due to difficulties in understanding one another as a result of language or vocabulary differences (Jones, 1994; Sabherwal, 2003). Some sources (e.g., Kliem, 2004; Natovich, 2003; Rajkumar & Dawley, 1998) also highlight potential issues due to tensions in the geopolitical environment that can compromise the execution of the project. Furthermore, differences in laws, intellectual property and information sharing (e.g., Bardhan & Kroll, 2006; Goodman & Ramer, 2007; Jarvenpaa & Mao, 2008; Pries-Heje, Baskerville, & Hansen, 2005; Rao, 2004) can hinder the development of trust and undermine exchanges between parties.

Besides communication, control, coordination and quality represent some of the most frequent themes found in the literature. For instance, coordinating exchanges among parties with different interests can be difficult to maintain throughout the duration of the project (e.g., Jones, 1994; Wareham et al., 2007) although it is necessary to ensure a desirable outcome. But coordination can also be hindered by delays due to the physical distance between parties (Ågerfalk et al., 2008; Jain, Simon, & Poston, 2011; Vlaar, van Fenema, & Tiwari, 2008), time differences (Kliem, 2004), and more importantly, the expectations parties have of one another

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regarding the roles and resources allocated to conducing the project (Ang & Toh, 1998; Choudhury & Sabherwal, 2003; Kliem, 2004). Therefore, managing coordination can be costly (Dibbern, Winkler, & Heinzl, 2008) and shift resources away from the development of the artifact. To alleviate these issues, control mechanisms are usually put in place, most often in the form of legal contracts. However these contracts can also be costly to draft and maintain, while being perceived negatively as a manifestation of the lack of trust between parties (Dibbern et al., 2008). Coordination and control mechanisms also aim at ensuring that the quality of the software being developed corresponds to the original agreement between parties. However, the evaluation of software can be difficult when parties have different standards and practices related to defining and evaluating quality (Jones, 1994; Kliem, 2004; Natovich, 2003; Ravichandran & Ahmed, 1993). The final two themes found in the literature cover the areas of knowledge transfer and sharing, and human resources. While research on these themes is more scant, it highlights issues related to the transfer and sharing of critical business and technical knowledge between parties (e.g., Dibbern et al., 2008; Levina & Vaast, 2008; Nicholson & Sahay, 2004) while others stress the issues of employee retention (e.g., Kliem, 2004) and the optimal use of each party's competencies in order to achieve a desirable objective.

Researchers have used different theoretical lenses to study this phenomenon. For example, transaction cost economics (e.g., Dibbern et al., 2008; Whitten & Leidner, 2006) provides guidance toward the design of hierarchical elements and contract choices given the uncertainty associated with this type of project. While the quantification of these elements allows for a clearer decision process, it precludes explanations during the course of the project as events occur. Another important perspective used that is often found in offshore projects is that of culture. While it can explain the occurrence of events based on cultural differences (e.g., Arnott

et al., 2007; Wareham et al., 2007) it typically relies on specific and non-transferrable definitions of the culture construct, which makes comparisons across studies challenging.

Beyond these two perspectives, authors have used trust, coordination and control to explain the unfolding of OISD projects. For instance, Sabherwal (1999) identified a virtuous and a vicious cycle of trust based on multiple cases. Choudhury and Sabherwal (2003); Sabherwal (2003) and Sabherwal (2003) have also looked at the evolution of coordination and control mechanisms in several projects. While these perspectives acknowledge the dynamism of this type of project they focus on the evolution of these mechanisms without looking at each issue as both an output to the prior use of certain mechanisms and an input to the choice an alternate mechanism. More recently efforts have been made to integrate more than one theoretical perspective at a time. For example, Gopal and Gosain (2010) have extended Choudhury and Sabherwal's perspective on portfolios of control mechanisms and included boundary spanning activities as enablers of knowledge sharing across parties. Similarly, Sabherwal (2008) has proposed a conceptual framework to study coordination and control mechanisms together within the same project. Finally, a number of other, less prominent theoretical perspectives have also been used in this context at various levels of analysis. For example, psychological contract theory was used to explain how mutual obligations that exist at the individual level help achieve success (Ågerfalk & Fitzgerald, 2008; Koh & Ang, 2008; Koh, Ang, & Straub, 2004). The concept of boundaries was also used to explain how certain individuals can act as boundary spanners to help transfer knowledge between units and ensure that projects follow a satisfactory course (Levina & Vaast, 2008). On the topic of knowledge transfer and knowledge sharing, the use of a sensemaking and sensebreaking perspective provides insights into the unfolding of

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distributed work (Vlaar et al., 2008) while embedded knowledge helps explain how problems can arise in offshore software development projects (Nicholson & Sahay, 2004).

Overall, literature on the topic has highlighted a number of important issues that can occur and used different theoretical approaches to study them. In the following section, we introduce our model and explain each of its building blocks, expanding on the different theoretical lenses we adopt for each of them along with their interplay.
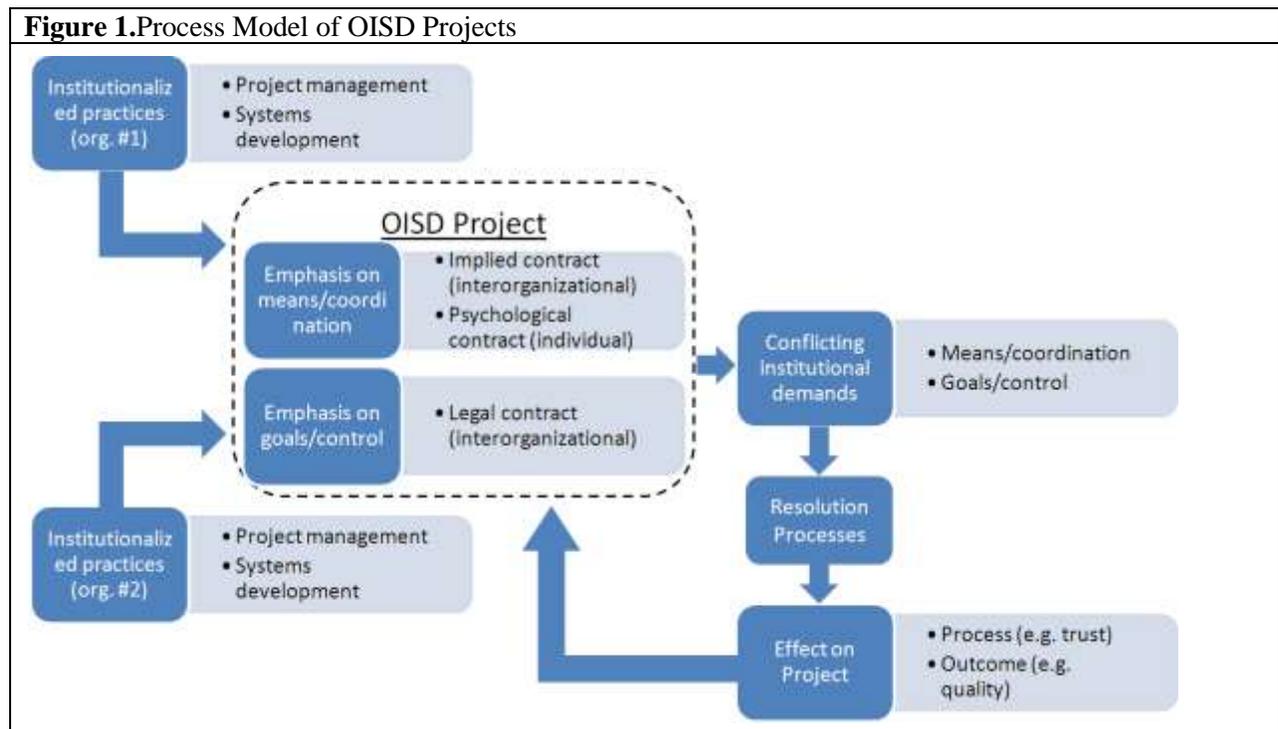
A PROCESS MODEL OF OISD PROJECTS

Given the complex nature of OISD projects (Ang & Beath, 1993; Koh & Ang, 2008) we follow Langley's (1999) recommendation for adopting a process approach to study complex organizational phenomena. The model we propose posits that some patterns are more likely to occur based on certain combinations of the inputs of a given phase of an OISD project. These inputs trigger certain changes that result in outputs, which are inputs for next phase of the process. Consistent with Van de Ven and Poole (2005), our approach considers our phenomenon of interest as a process unfolding over time. In an OISD project parties work together toward the development of an outcome negotiated prior to working together, defining a type of causality that Poole, Van de Ven, Dooley, and Holmes (2000) refer to as final causality, wherein "the end or goal guides the unfolding of development and change" (pp. 42). Our explanation is therefore based on the principle of "necessary causality" (Poole et al., 2000:41) where events occurring in sequence bear consequences on the unfolding process which is made of dynamic entities.

Our model, illustrated in Figure 1, adopts an institutional perspective wherein two parties that have institutionalized systems development and project management practices must find a common ground to temporarily work together. The institutionalized practices form a set of initial conditions that support the different forms of written and unwritten contracts between the parties.

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We propose that these forms of contracts pertain to different aspects of the project, such as the goals that must be reached and the means that must be used to reach them. From an institutional perspective, the practices that each party deems important may not be compatible. We suggest that these conflicting institutional demands (e.g., Pache & Santos, 2010) may threaten the different forms of contracts that exist between the parties. Faced with these conflicts in the form of pressures from institutionalized practices, parties may resort to different processes to resolve them. The resolution processes will impact the project's execution or its outcome, either directly or indirectly through a feedback loop into the unwritten contracts between parties.

In order to illustrate our arguments and anchor our model in organizational reality, we use vignettes culled from the literature. While research in the domain does not lack empirical evidence, few studies adopt a rich qualitative approach that provides a sufficient number of quotes from actors or detailed accounts of the events occurring during those projects. We identified some of these case studies and use them to illustrate our arguments (see Table 1).

Figure 1. Process Model of OISD Projects

Table 1. Sources for Vignettes (in chronological order)	
Source	**Context**
Adler, McGarry, Irion-Talbot, and Binney (2007)	Study of two government sector programs (A and C) at a large software services firm (CSC). Recounts the lessons and experiences of different employees involved in programs seeking to reach higher levers of CMM certification.
Levina and Vaast (2008)	Multinational financial services firm (Global Blank) outsourcing applications to inshore and offshore locations (India and Russia), independent or wholly owned.
Vlaar et al. (2008)	Leading US financial services firm located working with a team from one of India's largest IT services firms on the FINANCE project. Development is done offshore and a US based team acts as an interface with the client.
Vial (2009)	Large German multinational (LE) company outsourcing the development of a yard management system to a small Canadian firm specializing in that niche (SME). The outsourcing project was conducted as part of the development of an integrated solution for a European post services organization (Project XYZ).
Jain et al. (2011)	Large US service organization (ServCo) outsourcing different types of applications to three main vendors based in India (V1, V2, V3).

Institutionalized Practices as Inputs

An IS development project involves two main categories of practices: *systems development* and *project management practices.* Systems development practices are often part of a methodology. While methodologies are described in templates (e.g., the waterfall model, spiral development), organizations may not strictly rely on them. Indeed, methodologies are often either adapted to fit a particular context, or not formally used (Avison & Fitzgerald, 1995:446). This is especially true with recent, less prescriptive development approaches such as Agile. In order to facilitate the identification of practices beyond generic terms, we adopted Avison and Fitzgeral's framework (1995:445-446), synthesized in Table 2. Similarly, there exist several project management methods. In this study, we rely on the knowledge areas identified by the Project Management Institute (PMI) as a basis of comparison of project management practices. As shown in Table 2, each of the eight knowledge areas proposed by the PMI (Project Management Institute, 2004) refers to a category of processes typically involved in project management. These knowledge areas have been found useful to characterize and compare IS project management practices (Mignerat & Rivard, 2012).

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Table 2. Systems development and Project Management Practices
Dimensions of Systems Development Practices (adapted from Avison & Fitzgerald, 1995:446)
Philosophy: The foundation upon which a problem is approached and a solution is crafted, e.g., fulfilling customer's requirement or developing a system on time and on budget. *Model:* The methods of representation of the solution; e.g., process or class diagrams. *Techniques and Tools:* The technical choices in terms of systems development; e.g., rapid application development (RAD) tools and generic software patterns libraries. *Scope:* The activities involved in each phase of the systems development; e.g., the scope of these activities in a waterfall project from an Agile project. *Outputs:* The deliverables of each development cycle and at the overall end of the project, including documentation, specifications and prototypes. *Practice:* How activities are experienced by their stakeholders; e.g., difficulties encountered in applying standard activities in unknown contexts and the ability to modify them accordingly. *Product:* End product and final deliverables; may include training and support, or the delivery of source code.
Project Management Areas
Integration: "Processes and activities needed to identify, define, combine, unify, and coordinate the various processes and project management activities" (Project Management Institute 2004:77). *Time and Costs:* "Processes involved in planning, estimating, budgeting, and controlling costs so that the project can be completed within the approved budget" (Project Management Institute 2004:123, 157). *Communication:* "The processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of the project information" (Project Management Institute 2004:221). *Scope:* "Processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully" (Project Management Institute 2004:103). *Human Resources:* "Processes that organize and manage the team" (Project Management Institute 2004:199). *Quality:* "All the activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken" (Project Management Institute 2004:179). *Risk :* "Processes concerned with conducting risk management planning, identification, analysis, responses, and monitoring and control on a project […] to increase the probability and impact of positive events, and decrease the probability and impact of events adverse to the project" (Project Management Institute 2004:237). *Procurement :* "Processes to purchase or acquire the products, services, or results needed from outside the project team to perform the work" (Project Management Institute 2004:269).

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Together systems development and project management practices are patterns and prescribed behaviors that are part of each organization's inner functioning and regulate exchanges inside and outside its boundaries through their enactment by employees. It has been suggested that such practices may very well be institutionalized at the organizational level (e.g., Ayres, 2003).

In an institutional logic, behavior is not solely based on efficiency or effectiveness. Rather, it is motivated by legitimacy, "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Scott, 2008:59). A practice is said to be institutionalized when its legitimacy is recognized in a given context– an institutional field, which can be an organization (Jepperson, 1991) – and when it has acquired the status of a norm or quasi-rule (Mignerat & Rivard, 2012). Scott (2008:51) characterizes institutions on the basis of two dimensions: institutional pillars and institutional carriers. *Institutional pillars*, refer to three possible roots of an institution as its logic for enactment. Under the *Regulative* pillar, legitimacy is legally sanctioned via rules and regulations, and compliance is enacted through coercion. For example, there are local restrictions on the maximum allowed strength of encryption algorithms when coding in Java in different countries (Oracle Corporation, 2012). Under a *Normative* pillar, norms and beliefs shared by actors create a sense of moral obligation driven by indicators such as certifications or accreditations. In an OISD setting, this may translate into role expectations by different parties (e.g., Choudhury & Sabherwal, 2003). Vignette 1 illustrates a case where CMM certification by a provider created expectations for the client that were not successfully met (Levina & Vaast, 2008). Under a *Cultural-Cognitive* pillar, enactment is prescribed via a shared understanding often found in organization culture and other, more diffuse structures. For

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example, there may be *de facto* development or quality standards that exist within a team but are not documented in any fashion, as illustrated in vignette 2.

Vignette 1. Failing to meet client expectations
Program Manager (Levina & Vaast, 2008:315)
"It is funny, right, when any Indian provider comes in, the first thing they talk about is their CMM level, which is hysterical, cause they don't even know what that means.…Then when you move work there and try to look for a repeatable process or documentation, it is nonexistent."

Vignette 2. Following quality standards based on a cultural-cognitive pillar
SME-President (Vial, 2009:92)
"Generally we end up having very high quality standards. […] We do not draw the picture of high quality standards as such but we follow them."

Institutional carriers are the vehicles that convey institutional elements. Scott (2008:79) identifies four types of carriers. *Symbolic Systems* represent interconnected symbols along with their associated meanings. For example, under a normative pillar, it could be expected that most PMBOK certified project managers consider that the practice of risk management is part of their core values and distinguishes them from other project managers. Under a cultural-cognitive pillar, the symbolic system is considered within the group of institutional actors as taken for granted and may not be directly observable by non-compliant actors. For example, certain practices for developers may be unbeknownst to project managers and vice versa. *Relational Systems* define relations between actors and carriers. Under a regulative pillar, a client may hold power over its provider based on contractual agreements. Under a normative pillar, authority systems based on shared norms such as functional hierarchies may take precedence. Under a cultural-cognitive pillar, shared understanding may drive isomorphism among actors expected to enact similar practices. *Routines* represent concrete processes followed by actors enacting an institution, thereby reinforcing its legitimacy. Under a regulative pillar, protocols dictate actions. In OISD projects, this may be represented by a formal escalation or bug report process enforced

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in the legal contract. Under a normative pillar, roles and jobs dictate behavior, as illustrated in

vignette 3 while a cultural-cognitive pillar relies on the execution of scripts shared among actors

for the execution of an activity. *Artifacts*, which represent the last type of institutional carrier,

correspond to the materialization of the institution's prescribed behavior into physical or logical

objects. For example, under a regulative pillar, a piece of software needs to match specific

technical specifications and performance measures to pass acceptance phases as per a contractual

agreement. Under a normative pillar, this could be more loosely defined based on the norms of

an industry or internal standards, as illustrated by vignette 4. Under a cultural-cognitive pillar,

the symbolic value attributed to previous software may drive the process and the outcome of the

production of new software.

Vignette 3. Roles and jobs as normative elements of routine
Western Program Manager (Levina & Vaast, 2008:317)   "At the end of the day, in India they are very hierarchical… A 10 people team has two or three hierarchy levels. Then, with strict hierarchy, from the personality perspective, when you have a few people in the room, lower ranks would not say a lot, if anything, and the more senior people will say everything. Yet for technical solutions, the most valuable contribution will come from the doer on the ground."

Vignette 4. Following industry norms for software patterns
SME-Systems Architect (Vial, 2009:123)   "For sure, to code in Java, I would say that there are patterns, so what I mean is that I apply patterns, it's like there is no other way to do it. It takes a client, a session bean that talks to a data access object in the back, a data transfer object. From that perspective, I do not reinvent the wheel and I do not try to create new patterns, I mean the pattern is proven. Yes, there are anti-patterns, but I mean, I try... The objective is to use the pattern in an effective manner, and that is what I do."

Institutionalized practices represent a set of initial conditions that may influence the

design of the contract, the choice of a provider, and the unfolding of the project itself. In the next

sections, institutionalized practices are used to first explain how the project can be initially

shaped in the form of contracts and then how it may unfold over time based on their pillars and

associated carriers.

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Shaping the OISD Project: The Role of Contracts

Legal contracts define the responsibilities and deliverables agreed upon by the parties in an OISD project (Ang & Beath, 1993). Yet, because IS development is often complex and uncertain, other, more informal forms of contracting also exist (e.g., Koh & Ang, 2008; Koh et al., 2004).

Legal contracts: focusing on goals. Koh and Ang (2008:290-291) note four main elements of legal contracts, which we relate to OISD projects. The first element, *Product and Services Specifications* represents the attributes of the service or product requested by the client. In an OISD project, this describes features and functionalities of the artifact to develop. The very nature of an undeveloped piece of software may render the description of its final structure difficult (Ang & Beath, 1993:332). Indeed, at the time a legal contract is drafted, an idea of the final product exists in the mind of the client, but this idea is yet to be fully understood and realized by the provider. This idea may often change with time, as illustrated in vignette 5. Therefore, legal contracts will often contain the goals of the project based on the desired features of the artifact, which can be enhanced via the use of systems development practices promoting the representation techniques and tools such as diagramming or prototyping, as illustrated in vignette 6.

Vignette 5. The reality of changing customer requirements
LE-Project Manager (Vial, 2009:272) "It's part of our contracts usually. We define not only a test strategy or conventions at meetings; we also define a clearly structured claim management process. Usually when the customer has a change request we make an offer for this and the customer agrees or disagrees." **SME-Project Manager (Vial, 2009:177-178)** "We now have an appendix with our change request process which clearly explains that, throughout the project, if you drift away from the scope of the functionality of the requirements which were agreed upon or the design, here is the change request procedure that comes in by default. And as a customer, you have to implicate yourself deeply in all stages because if you do not understand… […] If you did not specify it, it is not there, you did not understand properly, it is a change request"

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Vignette 6. Enforcing the scope of requirements via written contracts
SME-President (Vial, 2009:183)
"I think that some things that we want to do now, with, among other things, smaller iterations, that the client really has, you know, complete screen prototypes. [...] It's not 'Ah, but I thought I would have a column here to show the delay'. No no, if it was not in the screen we drew for you, you cannot think…"

The *Pricing Structure* is another important contractual element, as different structures affect the amount of risk born by each party (Gopal & Koka, 2010; Koh & Ang, 2008). For instance, in a fixed-price contract, the provider bears most of the risk as delays, change requests and unclear specifications may reduce the profitability of the project on their side, as illustrated by vignette 7. However, in time-and-material contracts, the customer has a stronger incentive to come up with very detailed requirements because subsequent modifications translate into higher cost for them. Other pricing structures exist that combine fixed and time-and-materials elements in order to ensure that both parties bear an equal amount of risk. Pricing structure, however, may not be sufficient to explain how risk is allocated among parties. For instance, a client may miss critical deadlines and may be willing to negotiate with the provider to ensure the product is delivered on time with less functionality than initially intended. Similarly, the provider may also decide to incur costs on their side in order to increase their reputation or to foster future business. Therefore, limiting the choice of a pricing structure to a contract as an individual transaction may not represent the reality of some OISD projects, as shown in vignette 8. The *Payment Schedule* of a contract is typically linked to the achievement of milestones or iterations. Finally, *Contract Duration* determines the length of the relationship between client and provider (e.g., delivery of the software, extended support, training).

Vignette 7. The risks of changing requirements
LE-Senior Systems Architect (Vial, 2009:247)
"I've seen requirement creeping if you talk too much with your customers. This is often the case: the customer has not a defined, really a defined the idea of what he wants but he doesn't say he does not have a defined the idea, he makes some product specifications and you have to interpret this and come to a defined goal and then deliver something which is in line with this. But if we made the mistake to have

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intense discussions with him on what he really needs but he will not change the budget, he will not change the schedules and then afterwards we run out of money."

Vignette 8. Helping customers beyond the terms of a legal contract

SME-President (Vial, 2009:90)

"We try to tell the customer that this is the formal procedure and you will incur costs, starting from that point you will not be able to [*change requirements*] and so on. Except that if we realize that the client will slip and fall in a hole even if we warned them that they will need studs and we realize they don't have them, we will still lend them a hand and we will put the studs on their shoes, because from a commercial standpoint, it would be a bad… […] We will not let somebody die, that's the reality."

Legal contracts as primary control mechanisms. Legal contracts are a platform for negotiating the goals of the project and the control mechanisms that can be enforced in their pursuit. In terms of output (outcome) control (Ouchi, 1979), the legal contract is likely to include specifications about requirements, quality criteria, performance expectations and so on. In terms of behavior control (Ouchi, 1979), legal contracts may include clauses regarding systems development and project management practices. For instance, the client may require, due to regulation (e.g., Sarbanes-Oxley), that the provider hold different ISO certifications, or be at a certain CMM level in order to bid for a contract. While this does not necessarily mean that the provider can meet the client's goals, it aims to ensure that some of the processes they follow have been accredited by an external body of certification. As illustrated in vignette 5, practices related to a normative rather than regulative pillar may also be included in the contract.

While ideally, the enactment of the practices that are part of the legal contract should not be problematic due to their negotiated nature between both parties, their execution may prove challenging. For example, vignette 9 illustrates how the mandated use of a tool for documentation, a practice institutionalized at LE, was included when SME negotiated the contract. The details of how the use of this tool worked however were not known until work effectively started and was initially problematic for SME.

Vignette 9. The reality of respecting mandated requirements for project documentation
SME-Systems Architect (Vial, 2009:120-121)
"[*LE*] imposed a tool for documentation. But we did not have the expertise to use that tool because we did not have the training their employees had. This means that at the beginning, we did one long documentation phase with the tool to finally realize that… using the tool inadequately, that the tool did not really work the way we thought it did, which created problems. So in the end we hated that tool because we did not really use it as we should have, and at the same time, on LE's side, we had to work with the tool for the project they had with their client, [*our project*] was only a part of this whole project."

Implied contracts, psychological contracts & trust: focusing on means. In order to understand outsourcing projects, Koh et al. (2004) argue that "reliance on the legal contract alone is insufficient, however, given the complexities of real-life outsourcing arrangements and the rapid changes in technology and organizational environments" (pp. 358). Similarly, Sabherwal (2008:268) states that contractual agreements, however flexible they may be, cannot prevent and solve all problems that might occur during an OISD project. Vignette 8 illustrates such a case where penalties that were part of the legal contract were not always enforced in order to maintain the relationship with the client at its best.

Two types of unwritten contracts have been identified (Rousseau, 1989). *Implied Contracts* represent a "mutual obligation existing at the level of the relationship. […] Implied contracts are patterns of obligations arising from interactions between parties" (pp. 124). In the case of OISD projects, if parties agree to perform certain project management practices such as risk management, an implied contract might exist that this activity will be carried on diligently rather than automatically, to merely satisfy the clauses of the legal contract. *Psychological Contracts* represent an "individual's beliefs regarding the terms and conditions of a reciprocal exchange agreement between that focal person and another party" (Rousseau, 1989:123). Psychological contracts pertain to an individual level of analysis. However, Rousseau (1989:129) notes that implied contracts between higher level entities (e.g., two organizations) may trigger psychological contracts between members of these two entities (i.e., employees of the provider

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and client organization) and recognizes that together these concepts form a cross-level model (Rousseau, 1985). The focal unit of our model is the OISD project, which promotes the study of implied contracts. Consistent with Rousseau (1985), however, we acknowledge the multilevel nature of our phenomenon of interest and posit that the implied contracts that define informal terms between parties are enacted by individuals who may act based on the terms of a psychological contract.

While legal contracts focus primarily on deliverables and goals, we argue that implied and psychological contracts focus more on actions or means taken to reach these goals in OISD projects. For example, a contractual clause may require the monthly delivery of a risk status report as per one party's institutionalized project management practices. However, the actions taken to build this report so that it serves the project rely on one or several individuals' capacity to do it in an effective manner based on their perceived obligation to act in the indirect interest of the other party through the interest of the project. In certain cases, this may even mean that some terms of the legal contract may be amended or temporarily violated by one party. Vignette 10 illustrates such an example at SME where developers who had to comply with automated code audits required by LE through contractual agreements brought up concerns regarding some of the rules in use. They decided, together with LE staff, to forgo some of these rules to deliver better code while complying with other audit rules LE deemed important.

Vignette 10. Seeking compromise to relax the terms of the legal contract
SME-Systems Architect (Vial, 2009:121)
"You could say that we had certain ways of optimizing code. Then we realized that it did not pass the code audit because we had performed this optimization. So… There are some audit rules that we were able to drop by clearly explaining [*to LE*] that it was better to do it this way."

The notion of trust is another important construct in the OISD literature. In this study, we adopt Rousseau et al.'s definition (1998:395): "Trust is a psychological state comprising the

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intention to accept vulnerability based upon positive expectation of the intentions or behaviors of another". We further relate this definition to what McKnight and Chervany (2001:37) call institution-based trust, which relies on conditions and safeguards existing to foster success in uncertain situations, here OISD projects. Institution-based trust has two components: (1) structural assurance, which relies on regulative elements to foster success via coercive mechanisms in case of non-compliance from another party (e.g., a contract's legal recourses); and (2) situational normality which relates to the appropriateness of a situation to foster success, such as a provider's technological experience or professional certifications as a proxy for their capabilities. Together these components create conditions that are favorable to the acceptance of the degree of vulnerability inherent to depending on another party. Vignettes 11 and 12 illustrate cases of structural assurance where standards and guidelines are used as a primary method of interaction between client and provider and situational normality showing how LE commonly resorts to outsourcing for certain development tasks through standard, institutionalized practices. According to Sabherwal (1999) trust can evolve over time forming either a virtuous or a vicious circle. This is consistent with views on psychological contracts as dynamic structures (e.g., Robinson, 1996) and their relationship with trust (Sabherwal, 1999:81).

Vignette 11. Using standards and guidelines for structural assurance
Client Manager (Jain et al., 2011:286)
"The best way to deal with vendors is to depersonalize, by using standards and guidelines, then to manage criteria that is set in the contracts"

Vignette 12. The use of a formal process for outsourcing development tasks
LE-Project Manager (Vial, 2009:249)
"One of our ways of doing it is to provide some work packages to a partner company for example, like getting a contract to do this, this is the specification and at the end we will have a test on using it and we do this frequently."

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Implied contracts, psychological contracts, trust and their effects on coordination mechanisms. As discussed earlier, the inclusion in the contract of technical specifications, requirements or specific quality criteria allows both parties to share a common perception regarding the necessary attributes of the IS under development. The difficulty however, lies in the design and enforcement of the processes surrounding the development of this product. For instance, parties may contractually agree that status update reports must be communicated from the provider to the client every two weeks. While this is relatively easy to do, it does not provide any detail regarding how these reports are to be produced. For Sabherwal (2008:269), such processes are located around the development of the artifact and relate to coordination rather than control mechanisms. He observes that "coordination focuses on managing interdependencies among individuals and activities. […] Coordination is important because the overall task consists of multiple activities or individuals that depend upon each other". While his work emphasizes the use of project management activities as coordination mechanisms, the same applies to systems development activities. For example, in Vial (2009), LE sent one of its employees to work at SME for the duration of the OISD project to ensure that SME was not only using the mandated technology, but that it was using it in an appropriate fashion, as this could not be explicitly written in the contract. Therefore, OISD projects often rely on a combination of control and coordination mechanisms for their execution. We argue that practices centered on coordination are less likely to be found in legal contracts as their nature may prevent their representation in concrete artifacts.

In his work on coordination mechanisms in OISD projects Sabherwal (2003:156-157) reviews common mechanisms identified by past literature and proposes a higher level categorization. We use it in this work as its dimensions resemble those of control mechanisms

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discussed earlier. The first two mechanisms, (1) *Standards* and (2) *Plans*, rely on a priori

specification of the rules to follow or the objectives to achieve in a way closely related to

behavior and outcome control mechanisms. The other mechanisms involve a degree of mutual

adjustment between parties. These can either be (3) *Formal Mutual Adjustments*, which are more

formalized and rely more on obligations such as those included in an implied contract between

parties; or (4) *Informal Mutual Adjustments*, which are less formal and relate to

interdependencies between individuals within and across parties, such as those included in a

psychological contract individuals may form toward the success of the OISD project. As shown

in vignette 13, different mechanisms can coexist and be embedded into one another while being

overall promoted by control mechanisms that define contractual obligations between parties

(Gopal & Gosain, 2010).

Vignette 13. The coexistence of written and unwritten contracts
Client Manager (Jain et al., 2011:287) "When dealing with offshore vendors some [CMs – *client managers*] do it well and some don't. Things that work well include partner with the vendor, give them clear expectations, ask them to give you regular status reports at detail level, and make sure to communicate constantly." **Testing Director (Jain et al., 2011:277)** "It would be bad if we had to manage the vendor based on the contract only."

We argue that due to their less specific nature, institutionalized practices centered on

means are more likely to be founded on normative or cultural-cognitive pillars. Consequently,

they are typically diffused via institutional carriers that are more informal than regulative

practices. Therefore, they are less likely to be part of a legal contract. Rather, they will be

supported at the individual level by psychological contracts enacted by actors behaving in the

pursuit of legitimacy out of perceived expectations and obligations from their counterparts.

These psychological contracts are further supported by an implied contract between the provider

and the client at an organizational level. At the interpersonal and interorganizational level, these

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contracts create a common ground that allows trust to emerge and evolve over time. Cook, Hardin, and Levi (2005:53) note that trust can help lower coordination costs through the use of more informal mechanisms. However, unlike legal contracts that can be flexible in their interpretation but fixed in their signed terms, these concepts are not static. Rather, they evolve through the execution of the project and factors affecting its process and outcome, whether positive or negative. On the subject of psychological contracts, Rousseau (1989:128) and Robinson (1996) note that they can be violated and that violations affect subsequent exchanges between parties. Implied contracts are also affected by breaches (Rousseau, 1989:132). Similarly, Lander, Purvis, McCray, and Leigh (2004), Sabherwal (1999) and Ali Babar, Verner, and Nguyen (2007) note that trust evolves over time in OISD projects as well. Finally, control and coordination mechanisms also evolve with time in OISD projects (Choudhury & Sabherwal, 2003; Sabherwal, 2003).

Beyond the passage of time, we suggest that it is the occurrence of events hindering or enabling the project or its execution that triggers changes in these elements. From an institutional perspective, each party involved in an OISD project may enact practices that may belong to them or the other party. For instance, when the terms of a contract are negotiated, clients may emphasize the importance of using their own project management practices. Conversely, the provider may negotiate to rely on their own systems development practices. While practices based on a regulative pillar are crystallized in artifacts that render their understanding easy, normative and cultural-cognitive institutionalized practices may prove more problematic. Parties may agree upon certain terms because their details cannot be known in advance. Yet, as King (1994) observed, "the devil is truly in the details", whether they may be in the fine print of an outsourcing agreement or the written and unwritten details of the execution of the agreement

itself. Therefore, we posit that the institutionalized practices of each party are combined into different forms of contracts that represent a set of initial conditions to start the project. Parties may discover that during the course of the project, their expectations and perceptions regarding the roles and deliverables of each other differ. Invariably, these differences will lead to adjustments, either through self-adaption or through escalation processes that may themselves be part of the legal contract. These episodes, as we refer to them, will create a feedback loop into the contracts and the trust between parties. In the following section, we rely on the concept of conflicting institutional demands to show how these differences emerge and how they can be resolved.

Conflicting Institutional Demands and Resolution Processes

Institutional theory traditionally treats institutions as part of closed systems, within a single institutional sphere. This perspective does not address the reality that many organizations nowadays may have to respond to pressures from more than one institutional sphere. In the case of OISD projects, each party will have to follow some of its own institutionalized practices while respecting some of the other party's institutionalized practices due to the written and unwritten contracts they form between one another.

Some authors, however, have addressed this issue. For instance, in the context of multinational corporations (MNCs), Kostova (1997) posits that MNCs have to follow the institutionalized practices of different countries, each with their own set of institutions. She proposes the concept of a country institutional profile to study the regulative, normative and cognitive contexts of different countries. MNCs trying to transfer practices from one country to the other therefore may experience difficulties based on differences between these profiles.

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These differences, aggregated as what is commonly referred to as "institutional distance" (e.g., Xu & Shenkar, 2002) influence the transfer of practices and their success in other countries.

In a similar vein, although applied outside the MNCs context, Kraatz and Block (2008) refer to the concept of institutional pluralism to describe a situation where an organization "operates within multiple institutional spheres" (pp. 243). OISD projects represent temporary spaces where the different institutionalized practices from two parties must coexist and may collide. This would imply that each organization involved in the project may have to follow its own rules, the other party's rules, and potentially some rules that have been negotiated as a combination of rules originating from both parties. While the incentive to follow the other party's rules may be less strong than to follow their own, contractual agreements and obligations arising from the implied contract between the two parties may not leave much choice. Adopting the notion of institutional pluralism, Pache and Santos (2010) studied the antecedents of conflicting institutional demands. Their argument stems from the fact that in order to understand how organizations may adopt different strategies to respond to institutional pressures (Oliver, 1991), there may be differences in their antecedents that drive certain strategies over others. Toward that end, they distinguish between conflicting institutional demands based on goals and means (pp. 462). This view is consistent with the one we have drawn in this paper so far. OISD projects involve a series of systems development and project management activities that are designed around goals and the means required to achieve them. In other words, not all activities contribute directly to control the development of the artifact but are nonetheless necessary to coordinate work and ensure parties are able to communicate and to a certain extent, cooperate for the sake of the project. As Pache and Santos argue (2010:460), "the key distinction [...] is between demands that involve conflict at the goals level (which may or may not involve conflict

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at the means level) and demands that are harmonious at the goals level yet lead to dispute about the means (functional strategies, processes) required to achieve these goals".

As vignettes 9 and 14 illustrate, OISD projects, due to their uncertainty and complexity, may involve agreements on goals but not on the means required to achieve them. Another important dimension of conflicting institutional demands Pache and Santos (2010) identify is whether they are internally represented by one or more parties as this will influence the stakes parties have in the response they adopt to resolve a conflict. In this work, we follow one of the alternative avenues offered by the authors (pp. 472) and propose that rather than relying on internal representation, the institutional pillars and carriers of the practices involved in the conflict may drive how each party handles it. In the next section, we rely on the foundations and carriers of institutionalized practices to uncover different resolution processes and the factors influencing them.

Vignette 14. The difficulty of using mandated means to achieve a goal
SME-Systems Architect (Vial, 2009:128)
"Earlier I was talking about the crumbs that fall on the floor [*about smaller organizations not always being able to enforce strong, documented standards*], or about how, maybe we had a different understanding of the code requirements. What it did is that at some point, there was a code audit and we said 'Wow! We are going to have a lot of code to modify. We might as well wait and we will do it all at the end'. But once we reached the end [*of the iteration*], we realized the code audit was really big, and that in the end, it was not really to see whether the code worked or not, it was more to ensure the automatic generation of documentation would work well for [*LE*]. That did not go well in a sense because all employees had to spend time making sure the audit would pass rather than concentrating on the code itself."

Resolution processes & the effects of time. Arguing that actors do not always comply to institutional pressures, Oliver (1991) proposed five strategic responses that actors may enact. (1) *Acquiesce*, actually refers to compliance. In an OISD project, this may occur when one party follows the other party's practice either because it is not institutionalized for them or because negotiations lead to an agreement that one practice should be adopted over the other. The latter

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occurs when regulative pressures are exerted at a higher level for one party and requires that all parties comply for the project to be viable. As discussed earlier, such pressures will typically be included in the legal contract and even potentially affect the selection of providers (e.g., through CMM certification requirements or compliance with Sarbanes-Oxley). Acquiescence represents the successful exertion of pressure from one party onto the other. We posit that this strategy is more likely to occur in the presence of practices founded on a regulative pillar as their carriers are typically legally sanctioned via a contract. However, it may also occur in situations where one party's practice is institutionalized while the other's practice is not. For example, normative practices are more likely to prevail over non-existing or non-institutionalized practices due to their more comprehensive rationalization and diffusion via dedicated carriers.

(2) *Compromise*, represents an attempt to partially satisfy demands. In OISD projects, this occurs via negotiations at the beginning of the project where parties discuss the project goals and the means to be used throughout the project. This may entail informal agreements or flexible contract clauses that leave room for discussion should and when certain issues occur. Compromise relies on the relationship that exists behind every type of outsourcing activity. While exchanges between partners can be minimal, the presence of unwritten contracts and trust between them motivates the "cultivation of an interorganizational relationship between client and provider" (Lee, Miranda, & Kim, 2004:111). Compromise may also be useful in situations where conflicts escalate and threaten the project itself. It represents an attempt to restore the exchange between parties and focus on productive, rather than destructive efforts in a situation where both parties have a stake in the conflict and want their own institutionalized practice to be followed. In the context of conflicting institutional demands, compromise involves a level of communication between parties that allows the external representation of the conflict by one

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party and its understanding by the other, as illustrated in vignette 15. We argue that compromise is more likely to occur when the conflicting institutional demands of both parties are due to practices that have the same institutional foundation or when the implied contracts and trust between parties gives room for reconciliation in the interests of the project, despite institutionalized practices that rely on different foundations.

Vignette 15. The use of compromise
SME-Systems Architect (Vial, 2009:121)
"For them, for it to work as it should, It had to be done with the tool [*a specific code and design documentation tool that was integrated with all other project documents and management tools at LE*]. After losing some time because we did not really agree, we tried to find a common ground between us [*SME and LE*] to be able to get the work done rather than losing our time with the tool."

(3) *Avoid* strategy is adopted when a party actively tries to avoid satisfying the institutional demands of the other party without overtly expressing it. In OISD projects, written contractual clauses may be the result of this strategy as parties may include practices that are not to be followed during the course of the project. However, we posit that this strategy will be more often used when the means required to reach the goals are not very clear. In this case, one party may initially agree on deliverables without working out the details regarding how it should be done. Vignette 16 illustrates such a case. While avoidance may not represent a long term viable solution if it precludes the delivery of elements from the written contract, it may be a suitable strategy for short term OISD projects where the goals matter more than the means employed to reach them. From an institutional perspective, it is more likely to occur when the foundations of each party's practices differ. For instance, if one party's practice is based on a normative foundation, it will be crystallized in artifacts and symbolic and relational systems that are more concrete than the other party's practice that rely on a cultural-cognitive foundation. More specifically, we argue that avoidance is more likely to originate from the provider's side as they typically carry the burden of satisfying all the demands of a client.

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Vignette 16. Means as a way to satisfy the end: the avoid strategy
Vial (2009)
During the course of project XYZ, SME had to write a number of use case and test case documents. These documents were to be written using a special tool mandated by LE which was integrated into the rest of Project XYZ's documentation. While SME initially agreed to use the tool, the first documentation phase done with it was frustrating for its employees (see vignette 9) and not up to LE's standards. Instead of using the tool, SME decided, on their own initiative and without negotiating with LE, to write documentation by following its own institutionalized practices (using their own documents and templates) and to code a separate tool that would take those documents and convert them into the format required by LE.

A (4) *Defy* strategy refers to an explicit challenge of the requirements of an institutional demand. In an OISD project, this translates into one party not respecting the requirements from either written or unwritten contracts. While this is more likely to center on means due to their lack of clarity, goals may also be affected, as illustrated in vignette 17. When goals are challenged, the outcome of the project and mandated deliverables may be affected. Perhaps more importantly, defiance can affect the unwritten contract between parties. For example, if one party fails to follow the other party's practices diligently, it may impact the level of trust between them. Resolving defiance issues may require legal recourses or negotiations that may affect the project. While compromise is based on mutual understanding, defiance relies on the lack of understanding of one party and their refusal to enter the other party's institutional logic and understand it. Vignette 18 shows that in Project XYZ, this logic was understood by LE's senior systems architect which fostered communication between parties resulting in compromises. From an institutionalized practice perspective, this is more likely to occur when both parties' conflicting practices rely on a normative or a cultural-cognitive foundation.

Vignette 17. An exemplary OISD project failure: the pitfalls of defiance
Natovich (2003)
In his study, Natovich (2003) relates the development of a billing system for Bezeq, a US telecommunications company by international provider AMS. In less than two years, he relates six different instances of conflicts between parties, each affecting the trust and quality of the relationship

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between them. In the last instance, both parties could not reach an agreement regarding the scope and requirements of the project. In the end, the project was terminated and resulted in long legal proceedings between the two companies in an attempt to recuperate the money they had lost, all this without any actual code being produced for a project Bezeq considered strategic.

Vignette 18. How mutual understanding can lead to compromise
LE-Senior Systems Architect (Vial, 2009:134) "And really I think I learned to see the difference what it's about, to know about one domain, know all the things with one product or one product line and to be focused. In a small company you can do things much more easily. You don't need this high […] processes and all standardizations we have which you have to take into account when you have to take into account a development of 100 or 200 people and you want to align this. This is much more different, than how much SME had at that time, 30 people."

The (5) *Manipulate* strategy, refers to active attempts to modify the logic underlying the demands of the institution, as illustrated by vignette 19. This can also occur in the form of site visits or the creation of teams where leaders are in charge of monitoring and controlling members. From an institutional perspective, this strategy is more likely to be initiated by the client and to occur in situations where the institutional foundations of conflicting demands are different. While manipulation may aim at modifying the logic without causing issues, its perception by one party may affect the trust and implied contract between them.

Vignette 19. The use of manipulation to enforce compliance
Onshore Infrastructure Team Member (Levina & Vaast, 2008:315) "We had to teach Russian developers how a bank's IT functions… to make sure controls are in place, to fix build and deployment procedures, etc… Initially we did not know what they did not know. They did not get such things as the importance of security, that we have auditors, that the data may be corrupted… Things would crash all the time… We had to repeat every rule multiple times or they would not adhere."

In this model, we argue that the effect of time cannot be neglected. We suggest that initially, acquiescence and compromises are more likely to occur as parties typically bid and enter negotiations to define the terms of the written contract. During the course of the project, dire circumstances may foster negotiations and compromises as parties try to restore a dialogue

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and salvage the project, or a party may resort to avoidance because they refuse the other party's institutional logic and use defiance in cases where it threatens their own.

The Lasting Influence of Episodes on the Project and Beyond

The potential effects of conflicting institutional demands on OISD projects are multiple. Impacts on the goals of the project include criteria typically sanctioned by written contracts such as delays, quality assurance issues, and other areas that focus on the delivery of the final product or one of its iterations. While these can be disastrous for the project (e.g., Natovich, 2003), they have the advantage of being typically well-understood by both parties at the time the written contract is signed. Consequently, the influence of conflicting institutional demands that resort to legal recourse may be important, but not necessarily long lasting especially if this recourse is performed toward the end of the project and the interorganizational relationship between parties will end soon.

Beyond these direct effects, indirect, perhaps more perverse effects are also likely to occur. We argue that such effects are more likely to be linked to the means employed to execute an OISD project rather than its goals. For example, breakdowns in communication may affect a client's perception of the provider's importance given to the project. If the provider does not consider frequent communication to be an important part of its practices, these differences may be negatively interpreted by the client. The client may in turn try to use different pressure tactics in order to have its own institutionalized practices enforced by the provider. Depending on the provider's response, this may affect the project over the long term. For instance, the implied contract between parties along with the psychological contracts individuals form toward the project may be impacted and one or both parties may consider that they have been breached.

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Furthermore, each conflict, based on its resolution, can further erode the trust and sense of obligation and expectations parties have in one another. Compounded together, these effects may in fact threaten the very completion of the project (Natovich, 2003; Sabherwal, 1999:83). Conversely, certain strategies adopted by a party in response to its counterpart's institutionalized practices may have a positive effect on the relationship. For instance, the use of the compromise strategy implies that parties enter a state of exchange where each tries to satisfy the other's demands and work in a collaborative fashion toward the project. As illustrated by vignette 10, the project benefits from the exchange and parties may see one another in a positive light. To a certain extent, this may even mean that trust, and unwritten contracts are strengthened between parties and that compromise could be a reliable trust-building mechanism. In such cases, there may even be long term effects where each party integrates practices from the other. Vignette 20 shows that SME integrated some of the practices enforced by LE during project XYZ as part of their own practices carried over after the project was completed. Overall, our model renders explicit the dynamic nature of written and unwritten contracts between parties.

Vignette 20. The evolution of practices as a result of joint work
SME-President (Vial, 2009:135)
"And you see, it is worth it, I imagine… There is something we took from the multilingual [*a software architecture pattern for developing multilingual applications that was mandated by LE*]. We learned some things in there, some ways to make software. We also have more components, from the application server, you know, the way we build all our applications in Java is very affected by that. I think we have synthesized, we have taken the best, but I mean our solid step in J2EE and to do Javadoc [*integrated documentation with the code*] for everything and so on, it comes from there. There are many, many things… Okay, so there are things that were taken and others left out? Exactly. Because there were things that were deemed useless or without any benefit? Absolutely. Yes, yes, after tasting it for months, at some point you say it's okay, I don't want that thing anymore!"

DISCUSSION

Our work integrates different existing theoretical perspectives to propose a model that provides a comprehensive understanding of OISD projects as a complex organizational

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phenomenon. The uncertainty and complexity associated with a project where an artifact may only exist in a few individuals' minds at the time an agreement is signed between parties warrant a perspective that allows us to consider it as an ongoing process. This process occurs over time and is subject to a series of events that can influence its course and outcome. We start by looking at the systems development and project management practices that represent important initial conditions that will influence the written and unwritten contracts between parties through contractual negotiations and the building of expectations at the individual and interorganizational levels before and during the course of the project. Our grounding of these two categories of practices based on the works of Avison and Fitzgerald (1995) and the Project Management Institute (2004) provides a clear conceptual framing that can help further differentiate between practices that focus on the goals of the project and the means required to achieve them without relying on specific, nontransferable methodologies or approaches.

From an institutional perspective, the identification of these practices' foundations and associated diffusion carriers give important cues regarding their relative importance for each party. This provides an original framework to determine which practices are more likely to be defined and enforced in the written and unwritten contracts between parties. Therefore, they become important inputs toward the execution and the management of the OISD project. As illustrated by empirical evidence on the topic (e.g., Jain et al., 2011), organizations rely not only on legal contracts, but also on implied and psychological contracts at the individual level to undertake these projects. These contracts allow us to relate the means and goals of the project to coordination and control mechanisms that are at play during its course. Our conceptualization provides a comprehensive picture of this organizational reality by uncovering linkages between them based on the institutionalized practices that serve as inputs to their formation.

Because it is impossible to define *a priori* all the rules that regulate the exchanges between parties in written and unwritten contracts, conflicts between the institutionalized practices of each party are bound to occur. The grounding of our model in institutional theory and the identification of practices and contracts emphasizing the means and goals of the project allow us to identify these conflicting institutional demands along with their source. Due to its process nature, our model further acknowledges that these episodes of conflicts do not occur in a vacuum as single, unrelated events that are necessarily resolved via the enforcement of legal contractual clauses. Rather, they are part of the *process* of developing software in an outsourcing context and for which legal recourses are generally considered as a last resort for their resolution. More often, they are resolved via a party's use of tactics in the forms of responses (Oliver, 1991) to the pressure exerted by the conflicting institutionalized practices to which they are expected to adhere.

We argue that different resolution processes are more likely to occur based on the origin of the conflicting institutional demand and the institutional foundation and carriers of its associated practices. Furthermore, resolution processes can redefine the nature of the relationship between parties and impact the outcome of the project over time (e.g., a *compromise* strategy may cause parties to agree on changing some of the requirements of the artifact) or its process (e.g., the *avoid* strategy used by one party may erode the other party's trust in their ability to diligently follow the development process). Our model acknowledges this long lasting influence of conflicts on the project via a feedback loop into the written and unwritten contracts that define its terms. Together these elements represent a comprehensive, theoretically grounded effort to understand the initial conditions that represent the foundation of an OISD project and their ongoing influence during its execution. For researchers, our model provides a framework that

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can guide them in the study of this particular type of outsourcing agreement by considering the influence of elements that exist prior to the project's undertaking in shaping the agreement and the evolving hierarchical and relational elements that are involved throughout its execution.

CONCLUSION

In this work, we posit that the foundations of each party's institutionalized practices provide important insight into events occurring during the course of the project. Based on Oliver's (1991) strategic responses to institutional pressures, we describe different processes parties can use to resolve them. These processes not only have an effect on the event itself, but also on the overall project, potentially affecting its process (e.g., the amount of trust one party has in the other), or its outcome (e.g., the quality of the deliverables). More importantly, we argue that these effects feed back into the project's written and unwritten contracts.

Our work makes two theoretical contributions. First, it advances knowledge on OISD projects with a comprehensive process theorization on the phenomenon. In line with recent research (e.g., Gopal & Gosain, 2010), we integrate different theoretical lenses to better grasp the scope of events that occur prior and during the course of a project and to consider feedback effects that may play an important part in further hindering or enabling its course. Our model helps research in this domain by uncovering linkages between concepts that are typically studied independently in a static manner, thereby explaining their origin and evolution throughout the course of a project. Rather than starting with a single theoretical perspective and using evidence to confirm its underpinnings, our model opens the door to studying this phenomenon under different lenses in an integrative manner, using contributions from a particular facet of the project explained by a theoretical perspective as an input to the next perspective's potential insights.

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Our second contribution is to the domain of institutional theory. While strategic responses to institutional pressures (Oliver, 1991) and conflicting institutional demands (e.g., Pache & Santos, 2010) have been used in several works, our model shows that they may be applicable to different contexts. In this work, we study a context where the conflicts and strategies emerge out of the temporary combination of the practices embedded within two distinct institutional spheres. This suggests that beyond the traditional top-down approach to strategic responses to institutional pressures and conflicting institutional demands, there is a potential to extend these approaches to the study of phenomena that are "horizontal" in nature and involve two units at the same level of analysis.

Future work could build upon our model and study its application in configurations that involve more than two parties. Recent research on the role of IT in value cocreation in organizations has acknowledged the importance of multifirm agreements (see an introduction to a recent special issue of MIS Quarterly by Grover & Kohli, 2012; Vlaar et al., 2008) and in software development, some have studied this configuration (e.g., Ågerfalk & Fitzgerald, 2008; Nurmi, Hallikainen, & Rossi, 2008). This poses an interesting question toward the applicability of the theoretical lenses we have used in our model. Surely answers to these questions could bring some interesting insights for researchers and practitioners alike.

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