



HAL
open science

IT outsourcing success: A dynamic capability-based model

Forough Karimi-Alagheband, Suzanne Rivard

► To cite this version:

Forough Karimi-Alagheband, Suzanne Rivard. IT outsourcing success: A dynamic capability-based model. Journal of Strategic Information Systems, 2020, 29, pp.101599 -. <10.1016/j.jsis.2020.101599>. <hal-03489897>

HAL Id: hal-03489897

<https://hal.science/hal-03489897v1>

Submitted on 7 Mar 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons CC BY-NC 4.0 - Attribution - Non-commercial use - International License

IT Outsourcing Success: A Dynamic Capability-based Model

Forough Karimi-Alagheband
HEC Montréal
3000 Chemin-de-la-Côte-Ste-Catherine
Montréal, CANADA, H3T 2A7
forough.karimi-alagheband@hec.ca

Suzanne Rivard (Corresponding Author)
HEC Montréal
3000 Chemin-de-la-Côte-Ste-Catherine
Montréal, CANADA, H3T 2A7
Telephone number: 514 340-6493
Fax Number: 514 340-6132
suzanne.rivard@hec.ca

IT Outsourcing Success: A Dynamic Capability-based Model

Abstract

This study proposes and tests a model of information technology outsourcing (ITO) capabilities as antecedents of ITO success. Building on the dynamic capabilities perspective (DCP), the model posits that ITO sensing, ITO seizing, and ITO orchestrating capabilities will influence ITO success by way of both successful reconfiguration of IT solutions and successful delivery of IT services. Building on extant ITO research, the model also hypothesizes that contract management capabilities and relationship management capabilities will influence ITO success via the successful delivery of IT services. Data from a cross-sectional survey of 152 large U.S.-based organizations in various industries were analyzed with PLS. The results support the hypothesis that successful reconfiguration mediates the effect of dynamic capabilities on ITO success. They partially support the hypothesis of successful delivery as mediator of the effect of dynamic capabilities on ITO success. The hypothesis of successful delivery as a mediator of the effect of relationship management capabilities and contract management capabilities on ITO success is supported only for relationship management capabilities. The study offers a theoretical anchoring for the conceptualization of ITO capabilities, which complements the rich and context-specific case-based literature of ITO capabilities and extends current research by adding to existing explanations of how ITO success is achieved.

Keywords

Dynamic capabilities perspective, IT outsourcing success, IT outsourcing dynamic capabilities, IT outsourcing management capabilities, IT reconfiguration

Information Technology Outsourcing Success: A Capabilities-based Model

1. Introduction

While information technology outsourcing (ITO) has been designated the “soon to be the new normal” (Cole 2013), with an average of nearly 10 percent of firms' IT budgets outsourced in 2018 (Computer Economics 2018), industry experts deem that outsourcing initiatives do not always “achieve their intended results” (Overby 2018). Over the years, many researchers have endeavored to address the challenges in ITO management at the firm level and have made important contributions in terms of identifying the antecedents of ITO success (Lacity et al. 2010, Liang et al. 2016). For example, conceptualizing ITO success as the degree of satisfaction with the realization of ITO objectives, researchers have found that partnership quality, commitment and trust (Grover et al. 1996, Lee and Kim 1999, Lee 2001, Han et al. 2008, Lee and Choi 2011), outsourcing flexibility (Sia et al. 2008), contract scope (Grover et al. 1996, Lee et al. 2004), and contract duration (Lee et al. 2004) had significant effects on ITO success. Adopting objective measures of ITO success—e.g., firm productivity—, others have found that the IT knowledge provided by service suppliers contributed to client firms' substantial gains, especially for clients whose operations involve higher IT intensity (Chang and Gurbaxani 2012).

Notwithstanding the contribution of extant research, we believe that explanations and predictions of ITO success—conceptualized as satisfaction with the realization of ITO objectives—could be advanced by exploring a path that has been somewhat overlooked until now: that of client ITO-specific capabilities, i.e., capabilities that clients must possess in order to successfully engage in and manage ITO endeavors. Although, as shown above, extant research has proposed numerous determinants of ITO success, it has seldom focused on the role of client ITO-specific capabilities. We posit that these capabilities are indeed critical, since they are closely related to the managerial practice at hand (that of IT outsourcing), rather than being common to many different organizational practices such as communication

capabilities (Kotlarsky et al. 2007). Identifying these ITO-specific capabilities will benefit managers involved in ITO decision-making and coordinating processes.

This is not to say that ITO research has ignored client capabilities. In fact, several studies have suggested that client capabilities, such as process integration capability (Rai et al. 2015), IT capabilities (Han et al. 2011), and vendor management capabilities (Han et al. 2008 and Han et al. 2013), are important in an ITO context. However, a close examination of this research reveals two gaps: (1) none of these studies proposed and tested hypotheses on the relationship between client capabilities and ITO success at the firm level, and (2) most client capabilities studied in an ITO context are not ITO-specific capabilities.

In terms of level of analysis, some studies have examined the effect of client capabilities on ITO success at the industry level (e.g., Han et al. 2011), at the project level (e.g., Han et al. 2013; Park et al. 2011), and at the individual level (Goles 2006). Because IT outsourcing plays an increasingly strategic role in organizations, whether in support of a maturing enterprise architecture (Ross and Beath 2006) or as a strategic tool for acquiring “cutting-edge innovation” (Su et al. 2015: 81), it is essential to develop our understanding of ITO capabilities and their effect at the same level of analysis as strategy: that of the firm.

In terms of the nature of capabilities, most of the client capabilities considered in extant research are not ITO-specific. Instead, some are high-level IT capabilities such as tangible IT assets (Chang and Gurbaxani 2012), IT management capabilities (Han et al. 2008, Han et al. 2013), IT-enabled process integration capabilities (Rai et al. 2015), IT skills and IT management skills (Goles 2006, Park et al. 2011), and IT knowledge, skills, and expertise complementary to vendors’ capabilities (Tiwana and Kim 2016). Other client capabilities considered in extant research are general management capabilities such as business functional skills and interpersonal and management skills (Park et al. 2011) and organizational ability (Lee 2001). Finally, while a small number of studies explicitly focused on client ITO-specific capabilities, such as vendor selection, contract facilitation, and relationship governance (Willcocks and Feeny 2006, Ranganathan and Balaji 2007), most were case and field studies that simply provide rich evidence of a relationship. Only one

study tested hypotheses on this relationship (Qi and Chau 2015). Therefore, our study addresses the following research question:

***RQ:** What is the influence of client ITO-specific capabilities on ITO success at the firm level?*

To answer this question, our study proposes and tests a model wherein overall ITO success is defined as the degree to which an organization achieves its IT outsourcing-related goals. The model explains and predicts the effect of two sets of ITO-specific client capabilities: ITO dynamic capabilities and ITO contract and relationship management capabilities. The model posits that the effect of ITO capabilities on ITO success is mediated by two intermediary outcomes: successful delivery and successful reconfiguration of IT services. More specifically, anchored in the dynamic capabilities perspective (DCP) (Teece 2007), the model explains and predicts that the influence of ITO dynamic capabilities (ITO sensing, ITO seizing and ITO orchestrating) on ITO success is mediated by both the successful reconfiguration of IT solutions and successful delivery of IT services (i.e., the extent to which ITO suppliers successfully deliver their contracted services). Building on extant ITO research, the model also hypothesizes that the effect of contract management capabilities and relationship management capabilities on ITO success is mediated by successful delivery of IT services.

By proposing and testing a model of firm-level ITO success theoretically anchored in DCP, the study complements the rich and context-specific case-based literature on ITO capabilities. The study also expands current knowledge by considering both strategic and operational perspectives in its explanation of ITO success. It also provides practitioners with guidelines for investing in different paths to ITO success.

The next section introduces the dynamic capabilities perspective and describes the research model. This is followed by the method and results sections. The paper concludes with a discussion of the study's results and contributions.

2. Dynamic Capabilities Perspective

The dynamic capabilities perspective complements a resource-based view of the firm (RBV). RBV concentrates on the firm's resources, which may be physical (e.g., capital), human (e.g., employees' skills), or organizational (e.g., formal and informal planning), and are valuable, rare, inimitable and non-substitutable (Barney 1991). The theory posits that firms can gain a sustained competitive advantage by possessing resources with the aforementioned characteristics. It has been argued that while this direct link may be established in a relatively stable environment, in a turbulent environment the sustainability of such a competitive advantage can quickly be eroded (Wade and Hulland 2004) because RBV does not take into consideration the factors surrounding the resources. For example, how the firm develops those resources and uses them is not a concern in RBV (Wade and Hulland 2004). Here dynamic capabilities come into play, as they enable a firm to adjust its resources and therefore maintain its competitive advantage in a rapidly changing environment (Eisenhardt and Martin 2000).

The concept of dynamic capabilities was first introduced by Teece, Pisano and Shuen (1997) as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (p.516). Similar to this conceptualization, Helfat et al. (2007) defined dynamic capability as "the capacity of an organization to purposefully extend, create, or modify [i.e., reconfigure] its resource base" (p.1). Helfat et al.'s (2007) definition emphasizes that the value of dynamic capabilities for securing a competitive advantage lies not in the capabilities themselves, but rather in the reconfiguration of resources—either the creation of new resource configurations or the enhancement of existing configurations—that they allow (Eisenhardt and Martin 2000).

Dynamic capabilities have been conceptualized along the three dimensions of sensing, seizing, and orchestrating (Teece 2007, Martin 2011, Day and Schoemaker 2016). Sensing refers to the ability to scan the environment to spot and/or shape opportunities and/or threats. Seizing is conceptualized as the ability to address those opportunities/threats. Orchestrating includes enhancing, combining, and protecting tangible and intangible assets as well as rearranging and recombining them with a view to maintaining competitiveness.

The concept of dynamic capabilities has been adopted in different contexts. For example, in the context of IT strategic alignment, it has been used to conceptualize the notion of ‘dynamic strategic alignment’ as opposed to a more static view of alignment (Baker et al. 2011, Luftman et al. 2017). In the context of new product development (NPD), dynamic capabilities enable firms to explore the market in order to identify different product concepts (sensing), select the right product concept (seizing) and reconfigure and recombine resources to be able to produce the new product (orchestrating) (Pavlou and El Sawy 2006). The resulting new product is expected to respond to the requirements of the environment. Sensing and seizing capabilities have been used to conceptualize the concepts of firm agility (Overby et al. 2006, Teece 2007, Teece et al. 2016) as well as customer agility (Roberts and Grover 2012). Studies in the health care sector have examined sensing and addressing outside changes (e.g., patient relationships, governmental healthcare policy) (Wu and Hu 2012), and sensing patient needs as well as challenges/opportunities in the environment, and respond accordingly (Singh et al. 2011). At the individual managerial level, these capabilities are identified as a mechanism through which the cognitive capabilities of managers shape strategic change at their firms (Helfat and Peteraf 2015). Also, more recent studies have examined how dynamic capabilities could be shaped and developed (Bingham et al. 2015, Battleson et al. 2016) and put into practice (Felin and Powell 2016). As developed in the model presented below, this study adopts Teece’s (2007) and Teece et al.’s (2016) conceptualization of sensing, seizing and orchestrating at the level of the firm.

3. A Model of ITO Capabilities and ITO Success

We propose a model (Figure 1), anchored in the ITO literature and in the literature on DCP, in which we explain the effects of clients’ IT outsourcing capabilities on IT outsourcing success. We suggest that ITO success (i.e., achieving ITO objectives) is influenced by a set of capabilities that are specific to the practice of ITO. Some of those capabilities—i.e., ITO sensing, ITO seizing, and ITO orchestrating—are of a strategic nature, while others are more operational—i.e., ITO contract management and ITO relationship management capabilities.

Importantly, we posit that the relationship between capabilities and success is not direct. The model suggests that capabilities influence ITO success via successful reconfiguration of resources and successful delivery of IT services. More specifically, the model posits that sensing, seizing, and orchestrating capabilities lead to ITO success by enabling firms create a winning recombination/reconfiguration of IT services/offerings that support business strategy and by contributing to the successful delivery of IT services. The model further hypothesizes that the effect of ITO contract management capabilities and ITO relationship management capabilities on ITO success is mediated by successful IT service delivery. Therefore:

H1: The effect of ITO dynamic capabilities (ITO sensing, ITO seizing, and ITO orchestrating capabilities) on ITO success is mediated by successful reconfiguration of IT services:

H1a: The effect of ITO sensing capabilities on ITO success is mediated by successful reconfiguration of IT services

H1b: The effect of ITO seizing capabilities on ITO success is mediated by successful reconfiguration of IT services

H1c: The effect of ITO orchestrating capabilities on ITO success is mediated by successful reconfiguration of IT services

H2: The effect of ITO dynamic capabilities (ITO sensing, ITO seizing, and ITO orchestrating capabilities) on ITO success is mediated by successful delivery of IT services:

H2a: The effect of ITO sensing capabilities on ITO success is mediated by successful delivery of IT services

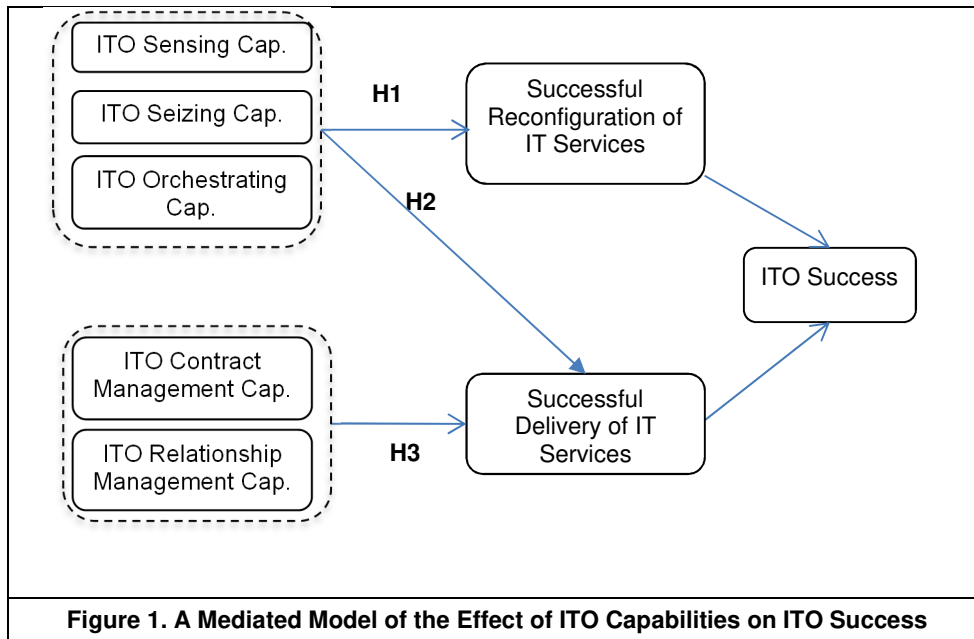
H2b: The effect of ITO seizing capabilities on ITO success is mediated by successful delivery of IT services

H2c: The effect of ITO orchestrating capabilities on ITO success is mediated by successful delivery of IT services

H3: The effect of ITO contract management capabilities and ITO relationship management capabilities on ITO success is mediated by successful delivery of IT services:

H3a: The effect of ITO contract management capabilities on ITO success is mediated by successful delivery of IT services

H3b: The effect of ITO relationship management capabilities on ITO success is mediated by successful delivery of IT services



In the following sections, we conceptually define the model's constructs. To this end, we have followed the guidelines/rules suggested by Wacker (2004) in order to provide clear, parsimonious and non-tautological definitions. We also provide support for the study's hypotheses.

3.1. IT Outsourcing Dynamic Capabilities

We define ITO dynamic capabilities as *the ability of an organization to sense ITO opportunities, seize opportunities, and orchestrate new and existing IT services and resources through outsourcing arrangements*. This definition accounts for the three dimensions of sensing, seizing, and orchestrating (Teece 2007, Martin 2011, Day and Schoemaker 2016). In the ITO context, sensing refers to the external scanning of the market to identify ITO opportunities, seizing refers to selecting one or several vendors to capture the identified opportunities, and orchestrating refers to coordinating the new vendors' services with what is already in place. Accordingly, our proposed model posits that the ability of a firm to reconfigure its IT services depends on the extent to which it possesses these capabilities. These capabilities are dynamic because they pertain to altering the status quo and making changes to the current pattern or portfolio of a firm's IT resources by bringing new solutions, new vendors, and new interdependencies. Furthermore, these capabilities are of a strategic

nature, because the decisions they pertain to and the knowledge they provide relate to the strategic resource positioning of a firm (Helfat et al. 2007): sensing capabilities enable a firm to be aware of possible new vendors or opportunities in the market; seizing capabilities pertain to searching for and selecting new vendors in order to acquire IT solutions/resources that have been identified through sensing capabilities; and orchestration capabilities coordinate and position the changes in IT services that are about to happen.

3.1.1. ITO Sensing Capabilities: The notion of sensing capabilities refers to the ability to explore the external environment and identify new opportunities. Through “constant surveillance of markets and technologies” (Teece et al. 1997, p.520), firms can detect new business opportunities. This capability includes exploring and searching activities regarding “information about what’s going on in the business ecosystem” (Teece 2007, p.1324) as well as external scanning of the environment/ecosystem to detect/identify new business opportunities (Day and Schoemaker 2016, Teece et al. 2016). In the ITO literature, the “investigate” phase of ITO (Cullen et al. 2005) includes activities that pertain to sensing (e.g., collecting intelligence on market conditions and suppliers). Sensing capability has also been conceptualized in terms of the client’s “proactive efforts” to learn about the ITO market (Sia et al. 2008). Proactive sensing in the outsourcing context has been defined as “maintaining vigilance by constantly scanning the environment to anticipate the need to create or generate new capabilities” (Tan and Sia 2006 ,pp.193-194). For example, firms with sensing capabilities are those that perform ‘technology watch’ to learn about technology trends, attend industry meetings and conferences, or have a dedicated group of people who are constantly looking for innovative solutions offered by the market. We therefore define ITO sensing capability as *the extent to which a client organization is able to scan the environment to identify new outsourcing opportunities and become alert to ITO market conditions and offerings*. In other words, sensing refers to a firm’s ability to scan, learn from, and interpret the IT outsourcing environment. Firms need to be aware of their environment in order to be informed about market changes (e.g., changes in customers’ preferences). In an ITO context, firms that are able to scan the market to become aware of IT suppliers as well as the

types of activities that are outsourced in similar and different industries, and other types of intelligence related to ITO, are well informed about how ITO might be used to make changes to their IT services. Consequently, when the need arises (e.g., when the current portfolio of IT services cannot respond to business needs), these firms are aware of market opportunities and therefore are more likely to successfully modify their portfolio of IT services (H1a). Furthermore, because sensing capabilities pertain to the ability to identify promising outsourcing opportunities, those capabilities are also likely to influence ITO success via the successful delivery of services (H2a). Indeed, research anchored in Transaction Cost Economics has shown that the choice of the right activities to outsource, which relies on a good understanding of trends and market conditions, can significantly influence successful delivery or lack thereof (Lacity et al. 2010).

3.1.2. ITO Seizing Capabilities: As per Teece's (2007) and Teece et al.'s (2016) conceptualization, the second set of dynamic capabilities that enable firms to become more competitive is seizing capabilities. Once new opportunities have been identified through sensing capabilities, firms need to address and capture those opportunities. In the ITO context, firms address and capture the identified opportunities through new or modified IT outsourcing arrangements, by selecting new or existing IT vendors who are able to provide those identified opportunities. More precisely, firms have to be able to identify capable IT vendors (either among their current vendors or new ones), to establish criteria for assessing vendor proposals, and to select the most appropriate vendor proposal. We therefore define this capability as *the extent to which a client organization is able to identify potential ITO vendors and select from among them*. In the ITO literature, vendor selection has been studied as a process that influences ITO success (Michell and Fitzgerald 1997, Lacity et al. 2010). Indeed, it is one of the main building blocks of the ITO lifecycle, including several key activities such as designing a bidding process, establishing selection criteria, and conducting the evaluation (Cullen, 2005). Dutta, Gwebu, and Wang (2011) argue that only a carefully selected vendor with a set of resources that are complementary to those of the client can help the client compensate for the inadequacy of its own IT resources (H1b). This is in line

with DCP, which suggests that a firm's ability to select partner firms whose resources complement the firm's resources will lead to the creation of the desired portfolio of resources (Helfat et al. 2007). Since ITO seizing capabilities are closely related to vendor selection, they are also hypothesized to influence ITO success via successful delivery (H2b), as extant research has shown that vendor quality is related to successful delivery (Lacity et al. 2010).

3.1.3. ITO Orchestrating Capabilities: Teece (2007) and Teece et al. (2016) define a third set of dynamic capabilities that includes enhancing, combining, and protecting tangible and intangible assets as well as rearranging and recombining them with a view to maintaining competitiveness. These capabilities entail the processes required to coordinate the resources needed to carry out a change (Helfat et al. 2007, Sharma and Shanks 2011) and execute a new strategy (Day and Schoemaker 2016). They also include synchronizing the tasks/resources of the firm with those of the partner (Helfat et al. 2007). In the ITO context, orchestrating capabilities refers to planning the integration of the newly acquired IT resources (e.g., the services/activities of an IT supplier) with current IT resources (e.g., the systems/services of the IT department). Especially in a multi-vendor context, this integration involves coordinating work by different vendors (Levina and Su 2008, Lee et al. 2009, Bapna et al. 2010). As Bapna et al. (2010) note, although multi-sourcing is becoming representative of modern organizations, the ability to reap its potential benefits remains a challenge for client firms. Indeed, this context poses the particular challenges of apportioning the right service level agreements (SLAs) among different vendors, making them consistent across the board, and assigning the right task to the right vendor. Even if a client firm has only one vendor, acquiring the ability to strategically coordinate/integrate the resources and activities of that vendor with internal IT functions remains a challenge (Ranganathan and Balaji 2007, Lacity et al. 2010). In this case, the client firm with orchestrating capability is able to outline and consider the interdependencies and complexities of current IT solutions and services when integrating a new set of IT services. We therefore define orchestrating capabilities as *the extent to which a client organization is able to coordinate the work of one or more vendors and integrate their resources and activities with the current IT department's*

resources and activities. As DCP suggests, firms that possess coordination/orchestration capabilities can strategically reconfigure their resources and create a winning combination of their own resources and those of partner firms. In the ITO context, firms that possess orchestrating abilities are able to plan the coordination of vendor activities with the internal IT function's activities, and to plan the integration of the vendor resources with the internal IT function's resources. This suggests that these firms are more likely to achieve their ITO objectives by successfully reconfiguring their IT services (H1c). Moreover, multisourcing involves a high level of interdependence among the tasks accomplished by different service suppliers, as well as between tasks performed in house and outsourced tasks (Bapna et al., 2010). Therefore, as hypothesized in the model (H2c), the effect of orchestrating capabilities on ITO success will also be mediated by successful delivery of IT services.

3.2. ITO Contract and Relationship Management Capabilities

The extant literature on IT outsourcing has examined many different antecedents of ITO success. Regardless of the level of analysis or the theoretical standpoint taken, most of these antecedents have been related either to contract attributes, such as contract complexity, flexibility, type, duration, and scope (Lee et al. 2004, Sia et al. 2008), or to relational governance attributes, such as partnership quality, trust, commitment, solidarity, role integrity, cooperation, and mutual understanding (Grover et al. 1996, Lee and Kim 1999, Lee 2001, Han et al. 2008, Lee and Choi 2011). Several studies have found that both contractual governance and relational governance have an effect on ITO performance (e.g., Poppo and Zeger 2002; Goo et al. 2009; Huber et al. 2014; Qi and Chau 2012, 2015). We therefore base part of our model on this literature by taking contract management capability and relationship management capability as the two capabilities needed to ensure successful delivery of outsourced services. Our model posits that the effect of these two capabilities on ITO success is mediated by the successful delivery of services.

3.2.1. ITO Contract Management Capabilities: This set of capabilities pertain to the ability of operationalizing requirements, in the form of detailed service descriptions and

SLAs, and negotiating the price of the IT solutions/services to be acquired (Ranganathan and Balaji 2007). Contract preparation and negotiation have been found to be one of the activities of the ITO lifecycle (Cullen et al. 2005) and a core IS capability (Willcocks et al. 2007). The characteristics of ITO contracts (i.e., duration and type) have also been found to impact different outcomes of IT outsourcing (Lee et al. 2004). An inability to design and negotiate desired contracts leaves the client with deals that bear little resemblance to what was expected (Cullen et al. 2005, Ranganathan and Balaji 2007). By preparing draft SLAs and the price framework in advance (i.e., designing what the firm needs), a firm can protect itself from being forced to accept vendors' standard contracts when they have limited time for negotiations and fast-approaching deadlines (Cullen et al. 2005). Argyres and Mayer (2007) argue that contracting is a managerial capability through which managers assign roles and responsibilities to the parties and decide how parties should communicate. We therefore define contract management capability as *the extent to which a client organization is able to write and negotiate contracts with IT vendors*. The model hypothesizes that firms that are able to write clear service descriptions, specify SLAs that reflect their business needs, and negotiate the desired SLAs as well as their pricing with vendors create a strong foundation for monitoring and measuring the performance of their vendors, and are therefore more likely to be satisfied with vendor performance and deliverables (H3a).

3.2.2. ITO Relationship Management Capabilities: These capabilities involve communicating with vendors and solving problems collaboratively with them (Dibbern et al. 2004, Cullen et al. 2005). Collaborative work with vendors has been found to be an important aspect of managing software development outsourcing arrangements (Poston et al. 2010). The IT outsourcing literature has extensively studied other relationship aspects of IT outsourcing management arrangements as antecedents of ITO success, including partnership quality, knowledge sharing, mutual understanding, trust, dis-trust, risk and benefit sharing, and commitment (Grover et al. 1996, Lee and Kim 1999, Lee 2001, Han et al. 2008, Swar et al. 2012). We define the relationship management capability as *the extent to which a client organization is able to manage its outsourcing relationships with IT vendors*. Firms that

possess the relationship management capability invest in effective communication channels and mechanisms with their IT vendors, try to solve problems with the vendors, and motivate vendors to perform better and improve. Therefore, these firms are more likely to be satisfied with their vendor's deliverables and performance (H3b).

3.3. ITO Success

ITO success at the firm level has often been conceptualized as the level of satisfaction with the economic, strategic, and technological benefits derived from outsourcing part or all of a firm's IT activities (Grover et al. 1996, Saunders et al. 1997, Koh et al. 2004, Qi and Chau 2012, Qi and Chau 2015). This conceptualization, which differs from the objective measures of performance adopted in some other studies—e.g., return on assets (Qu et al. 2010), book to market ratio (Gwebu et al. 2010), and market reaction (CARs index) to ITO announcements (Oh et al. 2006)—is in line with the notion of realized strategy (which includes both intended and emergent strategies) (Grover et al. 1996). Our study adopts this perspective yet proposes a conceptualization of ITO success pertaining to the *overall* realization of objectives rather than focusing on the three dimensions—economic, strategic, and technological—proposed by Grover et al. (Grover et al. 1996). Although we acknowledge our conceptualization does not name and identify the different ways in which firms consider their ITO a success, we believe that it allows for other possible ITO objectives to be included as well. Therefore, we define ITO success as *the degree to which an organization achieves its predefined and/or emergent goals through its IT outsourcing arrangements*.

3.4. Successful Reconfiguration and Successful Delivery

3.4.1. Successful Reconfiguration of IT Services: From a DC perspective, firms that make effective changes in their portfolio of IT services achieve a successful reconfiguration, defined as *the extent to which an organization has effectively extended, modified, and created its IT services/offerings through IT outsourcing arrangements*.

Successful reconfiguration is the extent to which the new profile of IT resources (e.g., IT services/offerings) is effective and satisfactory across a firm. As Eisenhardt and Martin

(2000) suggest, the value of dynamic capabilities depends on how much they allow resource reconfiguration. Successful reconfiguration in the context of joint ventures entails creating an idiosyncratic combination of resources between a firm and its partner that can serve as the basis for a competitive advantage (Helfat et al. 2007).

In IT, reconfiguration goes beyond reconfiguring IT resources and IT services to encompass reconfiguration of IT-enabled relationships and transactions as well: “dynamically reconfiguring the nexus of global contracts, resources, and transactions requires that the firm have the ability to assemble new contracts, resources, and transactions while disassembling some existing ones” (Tanriverdi et al. 2010, p. 829). Reconfiguration of IT services can be carried out either by relying solely on internal resources or through IT outsourcing contracts. When IT outsourcing plays a role in establishing a new pattern of IT services, ITO success will depend on the success of the reconfiguration effort. As our model proposes—as per H1—ITO dynamic capabilities (sensing, seizing, and orchestrating) will influence ITO success as they help firms shape a new set of IT services that is effective in supporting the business (e.g., by enabling the business to be more flexible or nimble in responding to changes in customer demand). If this reconfiguration (i.e., as the intermediate outcome of dynamic capabilities) is ineffective, in the sense that the new set of IT services and offerings do not support business objectives/needs, the business will be less likely to achieve its overall ITO objectives, regardless of whether they comprise IS improvement, cost reduction, commercial exploitation (DiRomualdo and Gurbaxani 1998, Lacity et al. 2009), or any other ITO objective.

3.4.2. Successful Delivery of IT Services: Following the ITO literature, we conceptualize successful delivery of IT services as *the degree to which the terms of the contracts between a firm and its suppliers are met*. This conceptualization pertains to several elements: perceptions of the performance of vendors in terms of service-level agreements (SLAs) (Ho et al. 2003); level of satisfaction with cost, quality of the output and service (Poppo and Zenger 2002), and responsiveness to problems and inquiries (Poppo and Zenger 2002); satisfaction with vendor performance (Saunders et al. 1997, Koh et al. 2004);

and quality of the vendors' services and deliverables (Aubert et al. 1996, Domberger et al. 2000). Although the ITO literature has generally examined successful delivery of IT services at the project level, it is a firm-level construct in our model.

As per our model, successful delivery of IT services is not an end in itself. Instead, it is a means for firms to achieve their overall ITO. As our model proposes—as per H2 and H3 above—successful delivery of IT services mediates the effect of ITO dynamic capabilities and that of contract management capabilities and relationship management capabilities on ITO success.

4. Methodology

In order to test the model, we conducted an organization-level cross-sectional survey of large U.S. firms in a range of industries that have outsourced some or all of their IT activities.

4.1. Measures

The constructs of our model were measured with reflective questionnaire items. Respondents were asked to indicate the extent to which they agree or disagree with a number of statements about ITO in their firms. Although most of the measures were developed from the conceptual definitions (see Appendix A: Complete List of Measures), existing measures from prior research were consulted and adapted wherever possible. For the wording of the measures, we drew on previous studies on dynamic capabilities (e.g., Pavlou and El Sawy 2006).

The dependent variable, ITO success, was measured with four items that capture the overall realization of ITO objectives (Grover et al. 1996, Saunders et al. 1997). Successful reconfiguration was operationalized with four items developed from the conceptual definition anchored in dynamic capabilities theory (Eisenhardt and Martin 2000, Zollo and Winter 2002, Helfat et al. 2007, Teece 2007); these items capture the changes made in IT services. The four-item measure of successful delivery, which captures whether SLAs are adhered to,

deadlines are met, and the cost and quality of the services acquired are as agreed upon, was adapted from Ho et al. (2003) and Poppo and Zenger (2002).

While some of the measures for dynamic capabilities constructs were adapted from the literature, some were newly developed based on the dynamic capabilities perspective (Eisenhardt and Martin 2000, Zollo and Winter 2002, Helfat et al. 2007, Teece 2007).

Sensing capability was measured using four items that capture reviewing and scanning of the IT outsourcing market. Four items were also used to measure seizing capability: they capture the ability to identify, evaluate, and select an IT supplier. Orchestrating capability was measured using four items that capture the coordination achieved among different activities and vendors. The five measures of contract management capability were all adapted from the literature (Cullen et al. 2005, Argyres and Mayer 2007, Ranganathan and Balaji 2007), as were the four measures of relationship management capability (Dibbern et al. 2004, Cullen et al. 2005, Poston et al. 2010).

4.2. Validating the Measures

To ensure content and face validity as well as readability of the measures, we asked four managers experienced in IT outsourcing to read the measures and the conceptual definitions. They advised us as to whether all the items were clear and could be answered by the intended group of respondents, if the measures indeed corresponded to the constructs, and if there were any items missing from a construct. We modified some of the measures based on their feedback. The measures were further validated using a card sorting technique (Moore and Benbasat 1991). The items were first presented to two Ph.D. candidates in the IS field. Based on their sorting and comments, some changes were made to the wording of the items.

For the second round, we split the constructs into two groups and presented each group to five Ph.D. candidates in IS. We provided the raters with the names of the constructs and asked them to categorize each item under a single construct. However, they were free to comment if they believed that an item belonged to more than one construct, or if

no appropriate category could be found for an item. The average weighted Fleiss' Kappa for the two groups was 0.905. Since the agreement between the two groups was high (greater than 0.65) (Moore and Benbasat 1991), we did not perform another round of sorting. Four items were deleted after the card sorting because all the raters considered them ambiguous. We further validated the instrument by conducting a pre-test with 46 senior IT managers from our target population. The pre-test results (convergent, discriminant, and reliability tests) led us to modify the wording of some items, delete some, and add some. We modified the measures based on the statistical results and in light of the comments received during the card sorting round. We conducted another pre-test with a sample from the same population (n=54) and found the changes effective. Based on the results of this second pre-test, we distributed the survey with no further changes.

To alleviate the common method variance susceptibility caused by method-method pairing before data collection, some procedural remedies (Podsakoff et al. 2003, Sharma et al. 2009) were applied. First, we used different scales for the items of the different constructs. Therefore, the constructs were measured using three different scales: (i) a five-point Likert scale ranging from "strongly agree" to "strongly disagree"; (ii) a seven-point Likert scale ranging from "highly inaccurate" to "highly accurate"; and (iii) a semantic differential approach ranging from "1-never" to "5-very frequently." Second, we created a psychological separation between questions about different constructs (Podsakoff et al. 2003). In particular, measures of IS strategy (innovative, conservative, no strategy) (Chen et al. 2010), work experience, and education were positioned between questions pertaining to independent constructs and those that measured the dependent constructs. IS strategy items are related to the IT domain at the organizational level but are not, however, related to ITO. Therefore, they are suitable for providing psychological separation, which is especially important between questions for independent and dependent variables (Podsakoff et al. 2003).

4.3. Data

We chose large, U.S.-based firms (number of employees greater than 500) across different industries (excluding governmental organizations and social services/public administrations) that have outsourced some or all of their IT activities. Following the literature on dynamic capabilities (Capron and Mitchell 2009, Lichtenthaler 2009), our target population was senior IT managers (e.g., CIOs). Senior IT managers are better informed about ITO capabilities that lead to success and about the nature of ITO success. Data was gathered via an online questionnaire/survey. The link to the survey was sent from a panel company with access to IT managers in different industries. Because the target population was set as senior IT managers, the survey included an extensive set of screening questions to ensure the suitability of respondents.

The panel company sent 2,359 invitations. Overall, 918 managers clicked on the survey link, resulting in a hit rate of 39%. However, only 556 respondents¹ started the survey, which resulted in a rate of 24% (556/2359). Three hundred and thirty-six of these respondents were eliminated at the first level of screening due to one or more of the following reasons: not being in the IT field; not having an ITO contract; and being in a firm of less than 500 employees. At the second level of screening, 66 respondents were eliminated due to one or more of the following reasons: not being personally involved in ITO decision making or in managing ITO contracts; having ITO contracts for less than a year; not having a managerial position; being in a governmental, social services or public administration; not having outsourced one or a combination of IS functions. The remaining 154 respondents could continue to the main questions of the survey. Two respondents were terminated in the middle of the survey as the result of giving the wrong response to a quality control question (“if you are still paying attention to this survey, please select number 2 for this answer”). This left 152 responses for data analysis. This number satisfies the minimum required power (0.8) as indicated in Cohen’s regression power tables (Cohen 1992, p. 158). As per Cohen’s tables, a 0.05 confidence level, medium effect size, and multiple regression section of the

¹ Eighty-four respondents could not continue to take the survey because we had designed the survey system (i.e., Qualtrics) with the *a priori* number of completed surveys (i.e., sample size) to be 150 (based on a regression power of 0.8). By the time these 84 respondents clicked to continue the survey, the quotas were full and they could not take the survey.

table (with 8 independent variables, which is the most complicated model in the table) require

Table 1a – Descriptive Statistics

a sample size of 107. This means that a sample size of 152 satisfies the power calculations requirement.

4.4. Data Analysis

The data was analyzed with Smart-PLS 3 (Ringle et al. 2015), as Partial Least Square is well-suited to examining mediating effects through multi-stage modeling (Gefen et al. 2000, Gefen et al. 2011, Lowry and Gaskin 2014). Once the measurement model was assessed, a multi-stage approach to data analysis was used to examine the effects of successful delivery and successful reconfiguration on ITO success. This was followed by an analysis of mediating effects.

5. Results

5.1. Descriptive Statistics

The data were gathered from client firms in a wide range of industries, with ITO contracts lasting from a year to 30 years, and with ITO scope of minimal to total (see Tables 1a, 1b, and 1c).

Industry	Frequency (%)	Longest Contract Duration (in years)	Frequency (%)
Banking, Finance, Insurance	25(16.4)	2	26(17.1)
Personal Services, Real Estate	22(14.5)	3	30(19.7)
Construction / Mining	8(5.3)	4	19(12.5)
Engineering & Management	13(8.6)	5	37(24.3)
Health	22(14.5)	6	3(2.0)
Hotel/Recreational /Amusement	4(2.6)	7	6(3.9)
Legal	1(0.7)	8	11(7.2)
Manufacturing	30(9.7)	9	2(1.3)
Retail, Wholesale / Distribution	13(8.6)	10	9(5.9)
Transport	8(5.3)	12	2(1.3)
Other	6(3.9)	>15	7(4.0)
Total	152(100)	Total	152(100)

Table 1b – Descriptive Statistics

Number of Employees	Frequency (%)	Respondent's Title	Frequency (%)
500-999	31(20.4)	CIO/CTO	48(31)
1000-4999	54(35.5)	VP IT/IS	17(11.2)
5000-9999	26(17.1)	Senior IT/IS Manager/Director	41(27)
10000-19999	19(12.5)	IT/IS Manager	37(24.3)
= > 20000	22(14.5)	IT/IS Director	9(5.9)
Total	152(100)	Total	152(100)

Table 1c – Descriptive Statistics

Scope of ITO	Frequency (%)	# of Vendors	Frequency (%)
Comprehensive (more than 80% of IT budget outsourced)	21 (13.8)	One vendor	22 (14.5)
Selective (outsourced IT budget between 20% and 80%)	112 (73.7)	Two vendors	65 (42.8)
Minimal (less than 20% of IT budget outsourced)	19 (12.5)	More than two vendors	65 (42.8)
Total	152 (100)	Total	152 (100)

5.2. Measurement Model

5.2.1. Reliability: To assess the reliability of each block of constructs, we used the composite reliability index from the PLS report, as well as Cronbach's alpha. Appendix B.3 shows that all the constructs have a composite reliability greater than 0.8, which is well above the suggested minimum (0.7) (Esposito Vinzi et al. 2010, Gefen et al. 2011). Cronbach's alpha is also above 0.6 for all the constructs (the smallest alpha is 0.73), which is the acceptable threshold for the early stages of a study (Nunnally 1967).

5.2.2. Validity: We assessed the validity of each item by checking whether the loading of each was greater than 0.7 and if the t-test of each loading was significant (a bootstrap procedure with 500 resamples was used to test for the loading's significance) (Chin 1998). As shown in Appendix B.2 (Validity at the Item Level), this holds for all of the items. Also, each item should not highly and significantly load on the other constructs (i.e., non-existence of high cross-loadings). Appendix B.2 shows that all the loadings on the intended constructs are higher than the loadings on other constructs, which indicates discriminant validity at the item level. We further assessed the validity of the constructs by checking whether the average variance extracted (AVE) of each construct was greater than 0.5. Appendix B.3 shows that this holds for all the constructs (smallest AVE is 0.546). Also, to assess discriminant validity at the construct level, we compared the square root of the AVE of a construct with the correlations of that construct and with all the other constructs. If the square root of the AVE is greater than all the correlations, this constitutes an indication of discriminant validity at the construct level. Appendix B.1 shows that this holds for all the constructs. Furthermore, we tested for variance inflation factors (VIFs) in a model that links all the independent variables to dependent variables. The outer and inner VIF values are all below the threshold ($VIF < 3$), with the largest VIF outer value at 2.87 and largest inner VIF value at 2.087. Therefore, multicollinearity is not an issue in our data, which supports our assumption of independence among ITO-related capabilities.

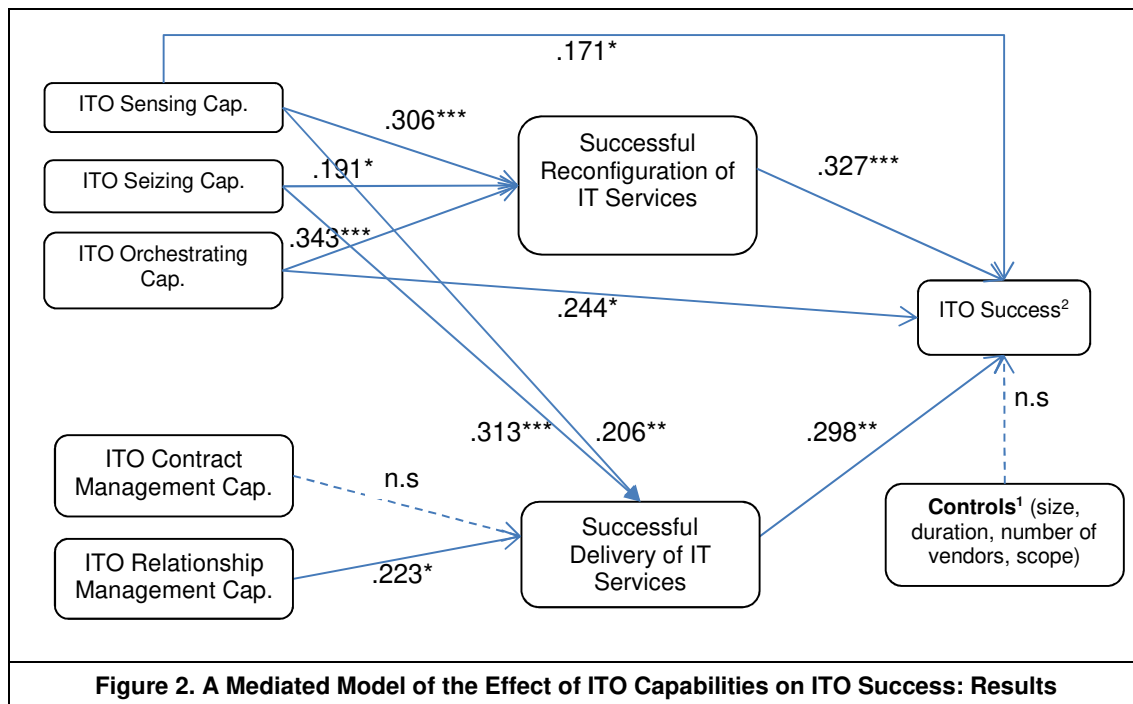
5.2.3. Method Bias: Notwithstanding the procedural remedies included in the survey design phase, method bias still remained as a potential threat to the study's results. Therefore, several statistical tests were performed to rule out this threat. First, we performed

Harman's one-factor test (Podsakoff et al. 2003). To perform this test, all the items were entered into an exploratory (i.e., un-rotated principal component) factor analysis (without specifying the number of factors). If common method bias was an issue, one single factor or a few factors would emerge or account for most of the variance in the constructs. In our study, 7 factors emerged (with eigenvalues greater than 1). The largest of them accounted for 34% of the variance, which indicates that method bias is probably not an issue². The second test examined the correlations between all the constructs of the model. If any of the constructs were highly correlated with each other (corr.>0.9), then common method bias could have been a threat (Pavlou and El Sawy 2006, Siponen and Vance 2010). In our study, the greatest correlation between two constructs is 0.65, which is another indication that common method variance is probably not an issue. Third, we performed a procedure (Podsakoff et al. 2003, Liang et al. 2007, Siponen and Vance 2010) in which a method factor was created (using all the items of the focal constructs) to determine whether the variance in the indicators is the result of the substantive (focal) constructs or the method construct. The procedure revealed that the variance in the indicators due to substantive constructs was considerably greater than the variance due to the method construct (see Appendix C). The average variance explained by substantive constructs is 63%, versus 1% for the method construct. Also, the effects of the method factor on the items of the focal constructs (λm^2) were mostly non-significant. Taking all these tests into account, we conclude that method bias is not a concern in this study.

5.3. Structural Model

To test the structural model, we ran the PLS algorithm and the bootstrapping procedure. As shown in Figure 2, most of the hypothesized relationships are significant at the 0.05 level.

² Although 7 components emerged from this analysis, they did not correspond to the 8 variables used in the study. We tested for sampling adequacy to confirm that our data was suitable for performing PCA. The results confirmed this assumption (KMO = 0.890 and Bartlett's test significant at .000). We therefore followed Podsakoff et al.'s [67] suggestion to complement Harman's one-factor test with additional diagnostic statistics.



¹ All paths are non-significant. Their respective coefficients are: 0.011, 0.065, -0.075, and 0.028

²Non-significant direct paths are not shown (except for Contract Management Cap. → delivery)

We adopted a multi-stage approach to data analysis in order to examine the effects of successful delivery and successful reconfiguration on ITO success (Srivastava and Teo 2012). As shown in Table 2, under M1, the four control variables (firm size, ITO scope, contract duration, and number of vendors) explained 11% of the variance in ITO success ($R^2 = 0.113$). The size and number of vendors have no significant effect on success. Scope negatively and significantly affects success, while the duration of the longest contract has a positive and significant effect on success. We then added successful delivery of ITO services to the model (M2) and re-ran the analysis. R^2 showed a significant increase of around 30% (new $R^2 = 0.405$). We also calculated the effect size of the addition of successful delivery to the model. This effect size is medium to large, and it is significant. Also, the addition of ITO successful delivery rendered all paths from the control variables non-significant. In the last step, we added successful reconfiguration to the model (M3). In M3 (where reconfiguration and delivery are direct determinants of ITO success), more than 50% of the variance in ITO success is explained, and the difference in R^2 (M3-M2) is around 15% (new $R^2 = 0.558$). The effect size from the addition of successful reconfiguration is 0.347, which is large and

significant (F -value=51.7***). The influence of successful delivery on ITO success remained significant in M3, but the strength of the path was reduced from $\beta = 0.615$ to $\beta = 0.403$. Table 2 also presents a summary of the comparison. Overall, the results show that the addition of successful reconfiguration significantly adds to the explained variance in ITO success. Moreover, the effect size of successful reconfiguration is larger than the effect size of successful delivery, which indicates that in this context, successful reconfiguration can explain more variance in overall success than successful delivery.

Table 2 - Model Comparison				
	Variance explained		Effect size	
	R²	ΔR^2	Effect size¹	Pseudo F-value $f^2 * (n - k - 1)$
M1: Control variables	.113	-	-	-
M2: Control variables + successful delivery	.405	.291 (M2 - M1)	.248	.248*(152-1-1) = 37.2***
M3: control variables + successful delivery + successful reconfiguration	.558	.153 (M3-M2)	.347	.347*(152-2-1) = 51.7***

*** $p < .001$; effect sizes small (0.02), medium (0.15), large (0.35) (Cohen, 1988); $n=152$; k =number of predictors;
¹ $f^2 = (R^2_{\text{Full model}} - R^2_{\text{Partial Model}}) / (1 - R^2_{\text{Full Model}})$

5.4. Mediating Analysis³

Our model hypothesizes that dynamic capabilities influence ITO success indirectly through successful reconfiguration, but also through successful delivery. In addition, the model hypothesizes that contract and relationship management capabilities affect ITO success indirectly through successful delivery (full mediation of successful delivery). To test these hypotheses with PLS, we used the path significance for the direct links and the significance for the indirect links (using bootstrapping results), as suggested by Zhao, Lynch and Chen (2010) based on Preacher and Hayes (2004). In this method, if $a*b$ is significant (with a being the coefficient from IV to MV and b the coefficient from MV to DV), but c is not significant (the direct link from IV to DV in the presence of MV), one can conclude that the mediation is “indirect only.” If the first part holds ($a*b$ is significant) and c is also significant,

³ Although our model did not hypothesize a mediating effect of contract and relationship management capabilities on ITO success through successful reconfiguration, we performed a test to empirically control for the existence of such a relationship (see Appendix D).

then depending on the sign of $a*b*c$, there is either complementary (i.e., partial) or competitive mediation (Zhao et al. 2010). This method is different from Baron and Kenny's (Baron and Kenny 1986), since there is no need to first establish a direct link between IV and DV without the presence of a mediating variable (Zhao et al. 2010).

Table 3 - Mediating Analysis		
	Relationship	Bootstrapping results
Step 1: Indirect paths $a*b$ (t-test of indirect effects)	Sensing → ITO success (MV ¹ : reconfiguration)	.100**
	Seizing → ITO success (MV: reconfiguration)	.063*
	Orchestrating → ITO success (MV: reconfiguration)	.112**
	Sensing → ITO success (MV: delivery)	.061*
	Seizing → ITO success (MV: delivery)	.093*
	Orchestrating → ITO success (MV: delivery)	.026ns
	Contract management → ITO success (MV: reconfiguration)	-.041ns
	Relationship management → ITO success (MV: reconfiguration)	.035ns
	Contract management → ITO success (MV: delivery)	.007ns
	Relationship management → ITO success (MV: delivery)	.067*
Step 2: Direct paths c (t-test of β co- efficient)	Sensing → ITO success	.171*
	Seizing → ITO success	-.07ns
	Orchestrating → ITO success	.244**
	Contract management → ITO success	-.039ns
	Relationship management → ITO success	.127ns

¹ Mediating Variable *Significant at 0.05 level; **Significant at 0.01 level

Table 4 - Mediating Analysis- Results		
Hypothesized Relationship	Type of Mediating Effect	Support for Hypotheses
Sensing → ITO success (MV ¹ : reconfiguration)	Partial	H1a partially supported
Seizing → ITO success (MV: reconfiguration)	Full	H1b supported
Orchestrating → ITO success (MV: reconfiguration)	Partial	H1c partially supported
Sensing → ITO success (MV: delivery)	Partial	H2a partially supported
Seizing → ITO success (MV: delivery)	Full	H2b supported
Orchestrating → ITO success (MV: delivery)	No effect	<i>H2c not supported</i>
Contract management → ITO success (MV: delivery)	No effect	<i>H3a not supported</i>
Relationship management → ITO success (MV: delivery)	Full	H3b supported

¹ Mediating Variable

5.4.1 Dynamic capabilities → reconfiguration → ITO success (H1a, H1b, H1c)

The results of this analysis show that in step 1 (Table 3), the total effects (indirect effects, or $a*b$) of the dynamic capabilities – sensing, seizing and orchestrating - on ITO success through reconfiguration are significant (0.100, 0.063, and 0.112 respectively). In step 2 (Table 3), the direct effects (c) indicate that the direct effect of seizing on ITO success is not significant (-0.07ns). Therefore, the effect of seizing on ITO success is fully mediated by reconfiguration. The direct effects of sensing and orchestrating on ITO success are both significant (0.171 and 0.244 respectively), indicating partial mediating effects of these capabilities on ITO success via reconfiguration.

5.4.2 Dynamic capabilities → delivery → ITO success (H2a, H2b, H2c)

To test H2, the effect of dynamic capabilities on ITO success through successful delivery, we tested for the indirect and direct effects of sensing, seizing and orchestrating on ITO success. As shown in Table 3, in step 1, the indirect effect is non-significant ($a*b$) for orchestrating capability (0.026ns) but significant for sensing and seizing capabilities (0.061 and 0.093 respectively). In step 2, the results of direct effects (Table 3) were used again in the same way they were used to test H1 (as explained above). The results indicate partial support for H2a, support for H2b and no support for H2c.

5.4.3 Contract and relationship management capabilities → delivery → ITO success (H3a, H3b)

The results of this analysis show that in step 1, the total effect (indirect effects, or $a*b$) of contract management capability on ITO success (shown in Table 3) through delivery is non-significant (0.007ns). The direct path from contract management capability on ITO success is also non-significant (-0.039ns), meaning that contract management capabilities do not have any effect on ITO success. Therefore, H3a is not supported.

On the other hand, the indirect effect of relationship management capability on ITO success through delivery is significant (0.067), and its direct path on ITO success is non-significant (0.127ns). This indicates that the effect of relationship management capability on ITO success is fully mediated by delivery (H3b supported).

6. Discussion

This study examines the role played by client ITO capabilities in explaining ITO success at the firm level. While extant research has shown that the attributes of outsourcing endeavors and of their components—i.e., relationship characteristics (Qi and Chau 2012, Qi and Chau 2015), contract features (Lee et al. 2004), and client and supplier attributes (Han et al. 2013)—affect ITO success, the results of this study emphasize the role of client capabilities closely related to the management of ITO.

The results of this study support—either fully or partially—the hypotheses that the effects of ITO capabilities on ITO success are mediated. The dynamic capabilities, ITO sensing, ITO seizing, and ITO orchestrating capabilities, positively affect ITO success, through successful reconfiguration (H1a, H1b and H1c). The effect of one capability—ITO seizing capability—on ITO success is found to be fully mediated by successful reconfiguration (H1b supported). The effects of ITO sensing and ITO orchestrating capabilities, however, were found to be partially mediated by successful reconfiguration (H1a and H1c partially supported). These results emphasize the importance of sensing and

orchestrating capabilities to achieving IT outsourcing objectives above and beyond reconfiguration of IT services and offerings. These results may be explained as follows.

First, sensing capabilities impact success above and beyond successful reconfiguration; for example, the choice of the right activities to outsource, the right vendor, or the right outsourcing agreement, as a result of sensing capabilities, will have a direct effect on ITO success. Second, the extant ITO literature identifies orchestrating capabilities, or the ability of client firms to coordinate services of multiple vendors to achieve a seamless, end-to-end, and integrated service, as being of crucial importance. As Bapna et al. (2010) note, a multisource environment requires managing an ‘enormous amount of coordination complexity’ (p.786). Failure in this coordination task could be equal to failure in IT outsourcing itself. Because multisourcing implies the delegation of interdependent services to several suppliers (Krancher and Stürmer 2018), joint performance (i.e., the extent to which the overall service delivered by all suppliers meets client expectations) requires addressing the interdependencies and conflicts among suppliers (Krancher et al. 2018). The direct effect of ITO orchestrating capabilities on ITO success could reflect the fact that, in a multi-sourcing context, some aspects of performance are not fully explained by successful reconfiguration and successful delivery. Instead, they might be influenced by the partners’ ability to *jointly* provide the required IT solutions, which has been referred to as joint performance (i.e., “the degree to which the joint performance of the two vendors met the client’s expectations” Oshri et al. 2019, p. 1262).

While all the H1 hypotheses were either fully or partially supported, the results for the H2 hypotheses—the effect of dynamic capabilities on ITO success via successful delivery—were mixed. H2a was partially supported, H2b was supported and H2c was not supported. We propose that the results for H2a, which are similar to those for its counterpart (H1a)—partial mediating effect of sensing capabilities on ITO success via delivery—, could be discussed similarly, i.e., from a transaction cost perspective, the choice of the right activities to outsource as a result of sensing capabilities will have a direct effect on ITO success, above and beyond successful delivery (Karimi-Alaghehband et al. 2011).

Contrary to what was hypothesized, the results indicate that contract management capabilities (H3a) do not affect ITO success via successful delivery. We would suggest that this may be due to the significant effect of the relationship management capability, which renders the effect of contract management insignificant. This is in line with extant literature (Grover et al. 1996, Lee and Kim 1999, Lee 2001, Han et al. 2008, Lee and Choi 2011) that has found that 'partnership quality' explains most of the variance in ITO success. Therefore, relationship management capability as an antecedent to partnership quality could explain most of the variance in successful delivery and in ITO success, rendering contract management insignificant. This suggests that, even without having contract management capabilities (e.g., being skilled at writing efficient contracts), communicating and working closely with IT vendors will increase the chances of success.

The results also show that the effect of relationship management capabilities on ITO success is fully mediated by successful delivery (H3b supported). These results help unpack the paths through which these capabilities affect success, as it indicates that possessing these capabilities does not lead directly to success, since they should first lead to delivery of services on-time, on budget and according to the SLAs before they can help achieve overall ITO objectives.

6.1. Limitations

We acknowledge that our study has limitations, some of which open avenues for future research. First, relying on a single respondent from each firm for assessing capabilities and their effects, demands that we address the issue of common method bias. In this study, several techniques—such as the procedural remedies suggested by Podsakoff et al. (2003)—were used to reduce the extent of common method bias. Moreover, multiple statistical tests were performed (e.g., Harman's one-factor test, common method factor), and they confirmed that common method bias is not a threat to the results. Second, the model was tested from the perspective of IT managers. Business managers might have different perceptions, especially of successful reconfiguration and overall ITO success. Third, a cross

sectional approach to data collection does not provide insight on the dynamic interactions among these capabilities and their future trajectory. Future research adopting a qualitative, longitudinal, theory-building approach could show how these capabilities are instilled and maintained. Furthermore, in-depth longitudinal case studies could investigate the essential micro-foundations—i.e., the distinct skills, processes, procedures, organizational structures, decision rules, and disciplines (Teece 2007: 1319)—that sustain ITO dynamic capabilities. Fourth, by focusing on the role played by dynamic capabilities in explaining the successful reconfiguration of IT solutions, our study has downplayed the influence of other dynamic capabilities that may well be essential in this context. Future research could explore the role played by such capabilities, such as IT architecture capabilities (Ross and Beath 2006) and knowledge integration capabilities in projects where technical solutions and business ideas are combined (Tiwana 2003). Lastly, in this study, we assumed that dynamic capabilities are, in general, beneficial to firms. However, while this assumption may hold in moderately to highly dynamic environments, in more stable types of environments firms might reap benefits from perfecting their operational capabilities and processes rather than reconfiguring them. In our study, we accommodated environmental dynamism by including companies from different industries with different levels of dynamism and velocity (Eisenhardt and Martin 2000). This could be further investigated through a multi-group analysis comparing firms in stable, moderately dynamic and highly dynamic environments.

6.2. Contributions

Notwithstanding these limitations, our study offers several contributions. First, by conceptualizing and operationalizing ITO dynamic capabilities, from a dynamic capabilities' perspective, the study offers a theoretical anchoring for the conceptualization of ITO capabilities as a complement to the rich and context-specific case-based literature of ITO capabilities (e.g., Willcocks and Feeny 2006, Ranganathan and Balaji 2007). Indeed, the dynamic capabilities perspective is particularly helpful in explaining the role of IS assets in creating business value (Sharma and Shanks 2011). This study focused on the particular

role of ITO dynamic capabilities in explaining that via their effect on the reconfiguration of IT solution and on the successful delivery of IT services, those capabilities contribute to the achievement of business objectives. Therefore, applying DCP provides insight on the link between ITO capabilities and the value they generate. While the more traditional resource-based view argues that the presence of resources suffices as a way to deliver value (Barney 1991), the dynamic capabilities perspective lays out a more detailed path to success (Eisenhardt and Martin 2000, Sambamurthy et al. 2003, Teece 2007).

Second, by taking into consideration both strategic and operational capabilities, the study complements extant research by offering a more comprehensive explanation of how ITO success is achieved. Our findings on the mediating role played by successful reconfiguration and delivery between capabilities and ITO success demonstrate that the presence of capabilities does not necessarily imply that success will result. These capabilities need to create a winning combination of IT services/offerings, and also need to lead to efficient contracts, before they can help a firm reach its ITO objectives (i.e., achieves success).

Third, the study offers some guidelines for practitioners. It demonstrates to the managers of client firms that, although mutual trust and commitment between clients and vendors is needed for ITO success, this is not sufficient. Indeed, the significant effect of ITO dynamic capabilities as operationalized in our study on ITO success implies that organizations need to actively and continuously engage in processes such as monitoring the environment, identifying outsourcing trends and opportunities, and developing the skills needed to assess vendors. Firms also need to put into place the processes and structures required to integrate new processes with existing ones. In addition to the well-documented need for 'relationship quality' for ITO success, our operationalizations of dynamic capabilities offer a fine-grained representation of the processes, structures, and skills (i.e., microfoundations) that are critical to ITO success. The model also provides managers with a framework, at the firm level, to gauge their overall ITO capabilities. Finally, the model provides managers with new insights into the role played by ITO, inasmuch as even a cost-

based ITO decision is clearly a strategic undertaking, and should be managed as such. This study shows managers that improvement of IT service quality is only part of the story, and that developing dynamic ITO capabilities can also contribute to support their strategy via the reconfiguration of IT solutions.

7. References

- Computer Economics, "IT Outsourcing Statistics 2018/2019--Outsourcing Trends and Cost/Service Experiences for 10 Key IT Functions." Retrieved February 15, 2019: <https://www.computereconomics.com/page.cfm?name=Outsourcing>
- Argyres, N. and Mayer, K., J. (2007). Contract Design as a Firm Capability: An Integration of Learning and Transaction Cost Perspective. *Academy of Management Review* 32(4): pp. 1060-1077.
- Aubert, B. A., Rivard, S. and Patry, M. (1996). A Transaction Cost Approach to Outsourcing Behavior: Some Empirical Evidence. *Information & Management* 30(2): pp. 51-64.
- Baker, J., Jones, D., Cao, Q. and Song, J. (2011). Conceptualizing the Dynamic Strategic Alignment Competency. *Journal of the Association for Information Systems* 12(4): pp. 299-322.
- Bapna, R., Barua, A., Mani, D. and Mehra, A. (2010). Cooperation, Coordination, and Governance in Multisourcing: An Agenda for Analytical and Empirical Research. *Information Systems Research* 21(4): pp. 785-795.
- Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management* 17(1): pp. 99-120.
- Baron, R. M. and Kenny, D. A. (1986). The Moderator- Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology* 51(6): pp. 1173-1182.
- Battleson, D. A., West, B. C., Kim, J., Ramesh, B. and Robinson, P. S. (2016). Achieving Dynamic Capabilities with Cloud Computing: An Empirical Investigation. *European Journal of Information Systems* 25(3): pp. 209-230.

Bingham, C. B., Heimeriks, K. H., Schijven, M. and Gates, S. (2015). Concurrent Learning: How Firms Develop Multiple Dynamic Capabilities in Parallel. *Strategic Management Journal* 36(12): pp. 1802-1825.

Capron, L. and Mitchell, W. (2009). Selection Capability: How Capability Gaps and Internal Social Frictions Affect Internal and External Strategic Renewal. *Organization Science* 20(2): pp. 294-312.

Chang, Y. B. and Gurbaxani, V. (2012). Information Technology Outsourcing, Knowledge Transfer, and Firm Productivity: An Empirical Analysis. *MIS Quarterly* 36(4): pp. 1043-1063.

Chen, D., Mocker, M., Preston, D. and Teubner, A. (2010). Information Systems Strategy: Reconceptualization, Measurement, and Implications. *MIS Quarterly* 34(2): pp. 233-259.

Chin, W. (1998). The Partial Least Squares Approach to Structural Equation Modeling. *Modern Methods for Business Research*, G. A. Marcoulides (ed.), Mahwah, NJ: Erlbaum: 295-358.

Cohen, J. (1992). A Power Primer. *Psychological Bulletin* 112(1): pp. 155-159.

Cole, A. (2013). "Outsourcing: Soon to Be the New Normal?", from <http://www.itbusinessedge.com/blogs/infrastructure/outsourcing-soon-to-be-the-new-normal.html>.

Cullen, S., Seddon, P. B. and Willcocks, L. P. (2005). IT Outsourcing Configuration: Research into Defining and Designing Outsourcing Arrangements. *The Journal of Strategic Information Systems* 14(4): pp. 357-387.

Day, G. S. and Schoemaker, P. J. H. (2016). Adapting to Fast-Changing Markets and Technologies. *California Management Review* 58(4): pp. 59-77.

Dedrick, J., Carmel, E. and Kraemer, K. (2011). A Dynamic Model of Offshore Software Development. *Journal of Information Technology* 26(1): pp. 1-15.

Dibbern, J., Goles, T., Hirschheim, R. and Jayatilaka, B. (2004). Information Systems Outsourcing: A Survey and Analysis of the Literature. *Database for Advances in Information Systems* 35(4): pp. 6-102.

DiRomualdo, A. and Gurbaxani, V. (1998). Strategic Intent for IT Outsourcing. *Sloan Management Review* 39(4): pp. 67-80.

Domberger, S., Fernandez, P. and Fiebig, D., G. (2000). Modelling the Price, Performance and Contract Characteristics of IT Outsourcing *Journal of Information Technology* 15(2): pp. 107-118.

Dutta, D., Gwebu, K. and Wang, J. (2011). Strategy and Vendor Selection in IT Outsourcing: Is There a Method in the Madness? *Journal of Global Information Technology Management* 14(2): pp. 6-26.

Eisenhardt, K. M. and Martin, J. A. (2000). Dynamic Capabilities: What Are They? *Strategic Management Journal* 21(10/11): pp. 1105-1121.

Esposito Vinzi, V., Trinchera, L. and Amato, S. (2010). PLS Path Modeling: From Foundations to Recent Developments and Open Issues for Model Assessment and Improvement. *Handbook of Partial Least Squares: Concepts, Methods and Applications in Marketing and Related Fields*. V. Esposito Vinzi, W. W. Chin, J. Henseler and H. Wang. Berlin Springer: 655-690.

Feeny, D., F. and Willcocks, L., P. (1998). Core IS Capabilities for Exploiting Information Technology. *Sloan Management Review* 39(3): pp. 9-21.

Felin, T. and Powell, T. C. (2016). Designing Organizations for Dynamic Capabilities. *California Management Review* 58(4): pp. 78-96.

Gefen, D., Rigdon, E. E. and Straub, D. (2011). An Update and Extension to Sem Guidelines for Administrative and Social Science Research. *MIS Quarterly* 35(2): pp. III-XIV.

Gefen, D., Straub, D. W. and Boudreau, M. (2000). Structural Equation Modeling Techniques and Regression: Guidelines for Research Practice. *Communications of the Association for Information Systems* 4(7): pp. 1-79.

Goles, T. (2006). Capabilities for Information Systems Outsourcing Success: Insights from the Resource-Based View of the Firm. *Information Systems Outsourcing*. R. Hirschheim, A. Heinzl and J. Dibbern, Springer.

Goo, J., Kishore, R., Rao, H., and Nam, K. (2009). The Role of Service Level Agreements in Relational Management of Information Technology Outsourcing: An Empirical Study, *MIS Quarterly* (33:1): pp. 119-146.

Grover, V., Cheon, M. J. and Teng, J. T. C. (1996). The Effect of Service Quality and Partnership on the Outsourcing of Information Systems Functions. *Journal of Management Information Systems* 12(4): pp. 89-116.

Gwebu, K. L., Wang, J. and Wang, L. (2010). Does IT Outsourcing Deliver Economic Value to Firms? *The Journal of Strategic Information Systems* 19(2): pp. 109-123.

Han, H., Lee, J. and Seo, Y. (2008). Analyzing the Impact of a Firm's Capability on Outsourcing Success: A Process Perspective. *Information & Management* 45(1): pp. 31-42.

Han, H. S., Lee, J. N., Chun, J. U. and Seo, Y. W. (2013). Complementarity between Client and Vendor IT Capabilities: An Empirical Investigation in IT Outsourcing Projects. *Decision Support Systems* 55(3): pp. 777-791.

Han, K., Kauffman, R. J. and Nault, B. R. (2011). Returns to Information Technology Outsourcing. *Information Systems Research* 22(4): pp. 824-840.

Helfat, C., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D. and Winter, S. (2007). *Dynamic Capabilities: Understanding Strategic Change in Organizations*. Malden, MA, Blackwell Publishing.

Helfat, C. and Peteraf, M. (2015). Managerial Cognitive Capabilities and the Microfoundations of Dynamic Capabilities. *Strategic Management Journal* 36(6): pp. 831-850.

Ho, V., T., Ang, S. and Straub, D. (2003). When Subordinates Become IT Contractors: Persistent Managerial Expectations in IT Outsourcing. *Information Systems Research* 14(1): pp. 66-125.

Huber, T., Fischer, T., Dibbern, J., and Hirschheim, R. (2014). A Process Model of Complementarity and Substitution of Contractual and Relational Governance in IS Outsourcing. *Journal of Management Information Systems* 30(3): pp. 81-114.

Karimi-Alagheband, F., Rivard, S., Wu, S., and Goyette, S. (2011). An Assessment of the Use of Transaction Cost Theory in Information Technology Outsourcing. *Journal of Strategic Information Systems* 20(2): pp. 125–138.

Koh, C., Ang, S. and Straub, D., W. (2004). IT Outsourcing Success: A Psychological Contract Perspective. *Information Systems Research* 15(4): pp. 356-373.

Kotlarsky, J., Oshri, I., Hillegersberg, J. v. and Kumar, K. (2007). Globally Distributed Component-Based Software Development: An Exploratory Study of Knowledge Management and Work Division. *Journal of Information Technology* 22(2): pp. 161-173.

Krancher, O., Kotlarsky, J., Oshri, I. and Dibbern, J. (2018). How Formal Governance Affects Multisourcing Success: A Multi-Level Perspective. *Thirty Ninth International Conference on Information System, San Francisco, California, USA.*

Krancher, O. and Stürmer, M. (2018). Explaining Multisourcing Decisions in Application Outsourcing. *Twenty-Sixth European Conference on Information Systems, Portsmouth, UK.*

Lacity, M., Khan, S., Yan, A. and Willcocks, L. (2010). A Review of the IT Outsourcing Empirical Literature and Future Research Directions. *Journal of Information Technology* 25(4): pp. 395-433.

Lacity, M. C., Khan, S. A. and Willcocks, L. P. (2009). A Review of the IT Outsourcing Literature: Insights for Practice. *The Journal of Strategic Information Systems* 18(3): pp. 130-146.

Lee, J. and Choi, B. (2011). Effects of Initial and Ongoing Trust in IT Outsourcing : A Bilateral Perspective. *Information & Management* 48(2/3): pp. 96-105.

Lee, J.-N. (2001). The Impact of Knowledge Sharing, Organizational Capability and Partnership Quality on IS Outsourcing Success. *Information & Management* 38(5): pp. 323-335.

Lee, J.-N., Heng, C. S. and Lee, J. (2009). Multi-Vendor Outsourcing: Relational Structures and Organizational Learning from a Social Relation Perspective. International Conference on Information Systems. Phoenix, Arizona, USA.

Lee, J.-N. and Kim, Y.-G. (1999). Effect of Partnership Quality on IS Outsourcing: Conceptual Framework and Empirical Validation. *Journal of Management Information Systems* 15(4): pp. 29-61.

Lee, J.-N., Miranda, S. M. and Kim, Y.-M. (2004). IT Outsourcing Strategies: Universalistic, Contingency, and Configurational Explanations of Success. *Information Systems Research* 15(2): pp. 110.

Levina, N. and Su, N. (2008). Global Multisourcing Strategy: The Emergence of a Supplier Portfolio in Services Offshoring. *Decision Sciences* 39(3): pp. 541-570.

Liang, H., Saraf, N., Hu, Q. and Xue, Y. (2007). Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management. *MIS Quarterly* 31(1): pp. 59-89.

Liang, H., Wang, J.-J., Xue, Y. and Cui, X. (2016). IT Outsourcing Research from 1992 to 2013: A Literature Review Based on Main Path Analysis. *Information & Management* 53(2): pp. 227–251.

Lichtenthaler, U. (2009). Absorptive Capacity, Environmental Turbulence, and the Complementarity of Organizational Learning Processes. *Academy of Management Journal* 52(4): pp. 822.

Lowry, P. B. and Gaskin, J. (2014). Partial Least Squares (PLS) Structural Equation Modeling (Sem) for Building and Testing Behavioral Causal Theory: When to Choose IT and How to Use IT. *IEEE Transactions on Professional Communication* 57(2): pp. 123-146.

Luftman, J., Lyytinen, K. and Zvi, T. b. (2017). Enhancing the Measurement of Information Technology (IT) Business Alignment and Its Influence on Company Performance. *Journal of Information Technology* 32(1): pp. 26-46.

Martin, J. (2011). Dynamic Managerial Capabilities and the Multibusiness Team: The Role of Episodic Teams in Executive Leadership Groups. *Organization Science* 22(1): pp. 118-140.

Michell, V. and Fitzgerald, G. (1997). The IT Outsourcing Market-Place: Vendors and Their Selection. *Journal of Information Technology* 12(3): pp. 223-237.

Moore, G. C. and Benbasat, I. (1991). Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation. *Information Systems Research* 2(3): pp. 192-222.

Nunnally, J. C. (1967). *Psychometric Theory*. New York, New York, McGraw-Hill.

Oh, W., Gallivan, M., J. and Kim, J., W. (2006). The Market's Perception of the Transactional Risks of Information Technology Outsourcing Announcements. *Journal of Management Information Systems* 22(4): pp. 271-303.

Oshri, I., Dibbern, J., Kotlarsky, J., and Krancher, O. (2019). An Information Processing View on Joint Vendor Performance in Multi-Sourcing: The Role of the Guardian. *Journal of Management Information Systems* (36:4): pp. 1248-1283

Overby, E., Bharadwaj, A. and Sambamurthy, V. (2006). Enterprise Agility and the Enabling Role of Information Technology. *European Journal of Information Systems* 15(2): pp. 120-131.

Overby, S. (2018). "9 IT Outsourcing Mistakes to Avoid." Retrieved 15 February, 2019, from <https://www.cio.com/article/3260204/outsourcing/it-outsourcing-mistakes-to-avoid.html>.

Park, J., Im, K. and Kim, J. (2011). The Role of IT Human Capability in the Knowledge Transfer Process in IT Outsourcing Context. *Information & Management* 48(1): pp. 53-61.

Pavlou, P. and El Sawy, O. (2006). From IT Leveraging Competence to Competitive Advantage in Turbulent Environments: The Case of New Product Development. *Information Systems Research* 17(3): pp. 198-227.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y. and Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology* 88(5): pp. 879-903.

Poppo, L. and Zenger, T. (2002). Do Formal Contracts and Relational Governance Function as Substitutes or Complements? *Strategic Management Journal* 23(8): pp. 707-725.

Poston, R., Simon, J. and Jain, R. (2010). Client Communication Practices in Managing Relationships with Offshore Vendors of Software Testing Services. *Communications of the Association for Information Systems* 27: pp. 129-148.

Preacher, K. J. and Hayes, A. F. (2004). Spss and Sas Procedures for Estimating Indirect Effects in Simple Mediation Models. *Behavior Research Methods, Instruments, & Computers* 36(4): pp. 717-731.

Qi, C. and Chau, P. (2012). Relationship, Contract and IT Outsourcing Success: Evidence from Two Descriptive Case Studies. *Decision Support Systems* 53(4): pp. 859-869.

Qi, C. and Chau, P. (2015). Relationship or Contract? Exploring the Key Factor Leading to IT Outsourcing Success in China. *Information Technology & People* 28(3): pp. 466-499.

Qi, C. and Chau, P. Y. K. (2012). Relationship, Contract and IT Outsourcing Success: Evidence from Two Descriptive Case Studies. *Decision Support Systems* 53(4): pp. 859-869.

Qu, W. G., Oh, W. and Pinsonneault, A. (2010). The Strategic Value of IT Insourcing: An IT-Enabled Business Process Perspective. *The Journal of Strategic Information Systems* 19(2): pp. 96-108.

Rai, A., Arikan, I., Pye, J. and Tiwana, A. (2015). Fit and Misfit of Plural Sourcing Strategies and IT- Enabled Process Integration Capabilities: Consequences of Firm Performance in the U.S. Electric Utility Industry. *MIS Quarterly: Management Information Systems* 39(4): pp. 865-886.

Ranganathan, C. and Balaji, S. (2007). Critical Capabilities for Offshore Outsourcing of Information Systems. *MIS Quarterly Executive* 6(3): pp. 147-164.

Ringle, C. M., Wende, S. and Becker, J.-M. (2015). "Smart Pls 3.0." from <http://www.smartpls.de>.

Roberts, N. and Grover, V. (2012). Leveraging Information Technology Infrastructure to Facilitate a Firm's Customer Agility and Competitive Activity: An Empirical Investigation. *Journal of Management Information Systems* 28(4): pp. 231-269.

Ross, J. W. and Beath, C. M. (2006). Sustainable IT Outsourcing Success: Let Enterprise Architecture Be Your Guide. *MIS Quarterly Executive* 5(4).

Sambamurthy, V., Bharadwaj, A. and Grover, V. (2003). Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms¹. *MIS Quarterly* 27(2): pp. 237-263.

Saunders, C., Gebelt, M. and Hu, Q. (1997). Achieving Success in Information Systems Outsourcing. *California Management Review* 39(2): pp. 63-79.

Sharma, R. and Shanks, G. (2011). The Role of Dynamic Capabilities in Creating Business Value from IS Assets. *AMCIS 2011 Proceedings Detroit, MI*.

Sharma, R., Yetton, P. and Crawford, J. (2009). Estimating the Effect of Common Method Variance: The Method—Method Pair Technique with an Illustration from Tam Research. *MIS Quarterly* 33(3): pp. 473-490.

Sia, S., Koh, C. and Tan, C. (2008). Strategic Maneuvers for Outsourcing Flexibility: An Empirical Assessment. *Decision Sciences* 39(3): pp. 407-443.

Singh, R., Mathiassen, L., Stachura, M. E. and Astapova, E. V. (2011). Dynamic Capabilities in Home Health: IT-Enabled Transformation of Post-Acute Care*. *Journal of the Association for Information Systems* 12(2): pp. 163-188.

Siponen, M. and Vance, A. (2010). Neutralization: New Insights into the Problem of Employee Information Systems Security Policy Violations. *MIS Quarterly* 34(3): pp. 487-502.

Srivastava, S. C. and Teo, T. S. H. (2012). Contract Performance in Offshore Systems Development: Role of Control Mechanisms. *Journal of Management Information Systems* 29(1): pp. 115-158.

Su, N., Levina, N. and Ross, J. (2015). The Long-Tail Strategy for IT Outsourcing. *MIT Sloan Management Review* 57(2): pp. 81-89.

Swar, B., Moon, J., Oh, J. and Rhee, C. (2012). Determinants of Relationship Quality for IS/IT Outsourcing Success in Public Sector. *Information Systems Frontiers* 14(2): pp. 457-475.

Tan, C. and Sia, S. K. (2006). Managing Flexibility in Outsourcing¹. *Journal of the Association for Information Systems* 7(4): pp. 179-206.

Tanriverdi, H., Rai, A. and Venkatraman, N. (2010). Reframing the Dominant Quests of Information Systems Strategy Research for Complex Adaptive Business Systems. *Information Systems Research* 21(4): pp. 822-834.

Teece, D. (2007). Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance. *Strategic Management Journal* 28(13): pp. 1319-1350.

Teece, D., Peteraf, M. and Leih, S. (2016). Dynamic Capabilities and Organizational Agility: Risk, Uncertainty, and Strategy in the Innovation Economy. *California Management Review* 58(4): pp. 13-35.

Teece, D., Pisano, G. and Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal* 18(7): pp. 509-533.

Tiwana, A. (2003). Knowledge Partitioning in Outsourced Software Development: A Field Study. *Twenty-Fourth International Conference on Information Systems, Seattle, Washington, USA.*

Tiwana, A. and Kim, S. K. (2016). Concurrent IT Sourcing: Mechanisms and Contingent Advantages. *Journal of Management Information Systems* 33(1): pp. 101-138.

Wacker, J. G. (2004). A Theory of Formal Conceptual Definitions: Developing Theory-Building Measurement Instruments. *Journal of Operations Management* 22(6): pp. 629-650.

Wade, M. and Hulland, J. (2004). Review: The Resource-Based View and Information Systems Research: Review, Extension, and Suggestions for Future Research¹. *MIS Quarterly* 28(1): pp. 107-142.

Willcocks, L., P. and Feeny, D. (2006). IT Outsourcing and Core IS Capabilities: Challenges and Lessons at Dupont. *Information Systems Management* 23(1): pp. 49-56.

Willcocks, L., Reynolds, P. and Feeny, D. (2007). Evolving IS Capabilities to Leverage the External IT Services Market. *MIS Quarterly Executive* 6(3): pp. 127-145.

Wu, I.-L. and Hu, Y.-P. (2012). Examining Knowledge Management Enabled Performance for Hospital Professionals: A Dynamic Capability View and the Mediating Role of Process Capability. *Journal of the Association for Information Systems* 13(12): pp. 976-999.

Zhao, X. S., Lynch, J. G. and Chen, Q. M. (2010). Reconsidering Baron and Kenny: Myths and Truths About Mediation Analysis. *Journal of Consumer Research* 37(2): pp. 197-206.

Zollo, M. and Winter, S. G. (2002). Deliberate Learning and the Evolution of Dynamic Capabilities. *Organization Science* 13(3): pp. 339-351.

Acknowledgements. We are grateful to Guy Gable, our senior editor, and to the anonymous reviewers for their excellent comments and suggestions.

Appendix A. Complete List of Measures

ITO contract management capability	
We have the skills required to negotiate Service Level Agreements (SLAs) for our IT outsourcing contracts.	Newly developed based on Ranganathan & Balaji 2007, Cullen et al. 2005; Argyres & Mayer (2007)
We have the expertise required to write termination/exit clauses into our IT outsourcing contracts.	
We have people in charge of negotiating the financial aspects of our IT outsourcing contracts.	
We have the expertise required to write the statement of work (SOW) for our IT outsourcing contracts.	
We have the expertise required to write service descriptions into our IT outsourcing contracts.	
ITO success	
Our IT outsourcing objectives have been realized. (adopted from Grover et al., 1996)	New and adopted [based on Grover et al. (1996)]
We achieved what we wanted from outsourcing IT activities/services. (new)	
Our IT outsourcing achievements have exceeded our expectations. (new)	
We are satisfied with the overall benefits we receive from IT outsourcing.	
ITO relationship management capability	
We have established mechanisms to motivate our IT vendors.	Adapted [Based on Cullen et al. (2005); Dibbern et al. (2004); Poston et al. (2010)]
We have clear communication channels with our IT vendors.	
We hold regular review meetings with our IT vendors.	
We have people in charge of managing relationships with our IT vendors.	
ITO seizing capability	
If we decide to outsource an IT activity, we know how to identify potential IT vendors.	All new [based on DCP]
If we decide to outsource an IT activity, we have clear criteria for evaluating the proposals of potential IT vendors.	
If we decide to outsource an IT activity, we have the expertise required to select among potential IT vendors.	
If we decide to outsource an IT activity, our firm has established criteria to determine which IT vendors will be invited to submit proposals.	
ITO sensing capability	
Some people in our department devote time to scanning the environment for new IT outsourcing opportunities.	All new [based on DCP]
We regularly review the IT vendors with whom our competitors work.	
On a regular basis, we review the types of IT services that are being outsourced in other industries.	
On a regular basis, we review the type of IT outsourcing agreements made in our industry.	
Successful delivery of IT services	
The service level agreements (SLAs) that we have in our contracts have been met (Based on Ho et al.,	Adapted from Ho et al. (2003)

2003).	and Poppo & Zenger (2002)
The deadlines specified in our IT contracts are met. (Based on Ho et al., 2003)	
Our IT vendors are responsive to problems or inquiries (Based on Poppo & Zenger 2002)	
The quality of the IT services we receive is at—or sometimes exceeds—the level specified in our IT outsourcing contracts. (Based on Poppo and Zenger 2002)	
Successful reconfiguration of IT services	
Since we first started to outsource IT, we have created new IT services/offerings.	All new [based on DCP]
Since we first started to outsource IT, we have made necessary modifications to our IT services/offerings.	
ITO has allowed us to create a portfolio of IT resources (including ours and those of our IT vendors) that well support our business strategic initiatives.	
Since we started to outsource IT, we have made effective changes to our IT resources.	
ITO orchestrating capability	
We have processes in place to coordinate the activities outsourced to multiple IT vendors.	All new [based on DCP]
We have people in charge of planning how the newly outsourced services will be integrated with other internal services.	
We have the skills to synchronize newly outsourced activities with currently outsourced activities.	
We have people in charge of coordinating the resources of our IT vendors with the resources of our IT department.	

Appendix B: Measurement Model (final sample of n=152) – Validity and Reliability

Table B.1. Convergent and Discriminant Validity at the Construct Level

Correlation of the Latent Variable Scores with the Square Root of AVE								
	Contract management	ITO success	Relationship management	Seizing	Sensing	Successful delivery	Successful reconfiguration	Orchestrating
ITO contract management capability	.773							
ITO success	.414	.802						
ITO relationship management capability	.502	.533	.748					
ITO seizing capability	.621	.442	.602	.798				
ITO sensing capability	.323	.519	.387	.256	.739			
Successful delivery of IT services	.453	.615	.548	.557	.418	.769		
Successful reconfiguration of IT services	.365	.655	.449	.440	.524	.479	.879	
ITO orchestrating capability	.642	.593	.500	.530	.468	.477	.564	.800

Table B.2. Validity at the Item Level

									A.
Construct	Item	Contract manag.	ITO success	Relation manag.	Seizing	Sensing	Succ-deli	Succ-reconfig	Orch
ITO contract management capability	CM1	0.834	0.329	0.396	0.516	0.263	0.447	0.314	0.555
	CM2	0.721	0.279	0.349	0.377	0.191	0.278	0.272	0.470
	CM3	0.717	0.299	0.322	0.408	0.350	0.294	0.335	0.439
	CM4	0.818	0.364	0.431	0.489	0.261	0.353	0.269	0.551
	CM6	0.767	0.329	0.438	0.586	0.192	0.342	0.227	0.452
ITO success	ITOS1	0.450	0.812	0.488	0.414	0.467	0.513	0.559	0.487
	ITOS2	0.348	0.805	0.450	0.401	0.345	0.523	0.481	0.490
	ITOS3	0.295	0.742	0.358	0.301	0.281	0.448	0.431	0.488
	ITOS4	0.238	0.846	0.408	0.301	0.545	0.490	0.613	0.449
ITO relationship management	RM_1	0.365	0.489	0.761	0.390	0.410	0.465	0.430	0.501
	RM_2	0.425	0.383	0.768	0.538	0.243	0.450	0.318	0.382
	RM_3	0.335	0.362	0.739	0.323	0.206	0.324	0.252	0.292
	RM_4	0.369	0.341	0.722	0.532	0.269	0.372	0.316	0.279
ITO seizing capability	Sz1	0.491	0.334	0.537	0.823	0.224	0.419	0.362	0.439
	Sz 2	0.510	0.249	0.426	0.801	0.151	0.394	0.270	0.419
	Sz 3	0.441	0.419	0.492	0.710	0.109	0.407	0.298	0.382
	Sz 4	0.536	0.393	0.467	0.851	0.290	0.532	0.435	0.450
ITO sensing capability	S1	0.213	0.460	0.330	0.185	0.804	0.371	0.514	0.440
	S3	0.311	0.349	0.296	0.207	0.753	0.248	0.381	0.277
	S4	0.259	0.399	0.240	0.192	0.665	0.273	0.268	0.300
	S7	0.191	0.313	0.259	0.184	0.727	0.333	0.312	0.337
Successful delivery of IT services	deli_1	0.337	0.354	0.290	0.373	0.320	0.696	0.289	0.328
	deli_2	0.352	0.417	0.455	0.347	0.385	0.776	0.330	0.365
	deli_3	0.394	0.465	0.342	0.499	0.283	0.759	0.301	0.304
	deli_5	0.328	0.610	0.550	0.485	0.313	0.840	0.509	0.451
Successful reconfiguration of IT services	config1	0.234	0.578	0.431	0.343	0.494	0.364	0.883	0.529
	config2	0.330	0.485	0.376	0.377	0.447	0.387	0.863	0.442
	config3	0.407	0.639	0.388	0.449	0.471	0.483	0.903	0.605
	config4	0.304	0.586	0.384	0.372	0.427	0.444	0.866	0.383
ITO orchestrating capability	T1	0.509	0.491	0.426	0.405	0.387	0.355	0.424	0.804
	T3	0.441	0.472	0.412	0.385	0.293	0.364	0.383	0.777
	T4	0.543	0.395	0.335	0.462	0.366	0.427	0.479	0.785
	T5	0.548	0.542	0.433	0.437	0.436	0.376	0.502	0.833

Table B.3. Validity and Reliability of Items and Constructs (Final Sample of n=152)					
Construct	Item	Loading*	AVE	Composite reliability	Cronbach's α
ITO contract management capability	CM1	.834	.597	.881	.832
	CM2	.721			
	CM3	.717			
	CM4	.818			
	CM6	.767			
ITO success	ITOS1	.812	0.644	0.878	0.815
	ITOS2	.805			
	ITOS3	.742			
	ITOS4	.846			
ITO relationship management capability	RM 1	.761	0.559	0.835	0.739
	RM 2	.768			
	RM 3	.739			
	RM 4	.722			
ITO seizing capability	Sz1	.823	0.636	0.875	0.811
	Sz 2	.801			
	Sz 3	.710			
	Sz 4	.851			
ITO sensing capability	S1	.804	0.549	0.829	0.731
	S3	.753			
	S4	.665**			
	S7	.727			
Successful delivery of IT services	Delivery_1	.696	0.592	0.852	0.771
	Delivery_2	.776			
	Delivery_3	.759			
	Delivery_5	.840			
Successful reconfiguration of IT services	Config1	.883	0.773	0.931	0.902
	Config2	.863			
	Config3	.903			
	Config4	.866			
ITO orchestrating capability	T1	.804	0.641	0.877	0.813
	T3	.777			
	T4	.785			
	T5	.733			

* All loadings are significant at $p < .001$ ** Deleting this item slightly increased AVE but decreased reliability; therefore, we decided to keep it.

Appendix C. Common Method Bias Analysis					
Construct	Indicator	Substantive factor loading (λ)	Variance explained (λ^2)	Method factor loading (λ_m)	Variance explained by method construct (λ_m^2)
ITO contract management capability	CM1	0.767	0.59	0.00	0.00
	CM2	0.796	0.63	0.10	0.01
	CM3	0.733	0.54	0.00	0.00
	CM4	0.818	0.67	0.00	0.00
	CM6	0.757	0.57	0.00	0.00
ITO success	ITOS1	0.687	0.47	0.14	0.02
	ITOS2	0.787	0.62	0.00	0.00
	ITOS3	0.814	0.66	0.10	0.01
	ITOS4	0.920	0.85	0.10	0.01
ITO relationship management capability	RM1	0.588	0.35	0.20	0.04
	RM2	0.713	0.51	0.00	0.00
	RM3	0.936	0.88	0.22	0.05
	RM4	0.758	0.57	0.00	0.00
ITO seizing capability	Sz1	0.818	0.67	0.00	0.00
	Sz 2	0.956	0.91	0.17	0.03
	Sz 3	0.695	0.48	0.00	0.00
	Sz 4	0.724	0.52	0.14	0.02
ITO sensing capability	S1	0.657	0.43	0.10	0.01
	S3	0.786	0.62	0.00	0.00
	S4	0.733	0.54	0.00	0.00
	S7	0.799	0.64	0.00	0.00
Successful delivery of IT services	Delivery_1	0.810	0.66	0.10	0.01
	Delivery_2	0.824	0.68	0.00	0.00
	Delivery_3	0.781	0.61	0.00	0.00
	Delivery_5	0.685	0.47	0.17	0.03
Successful reconfiguration of IT services	Config1	0.914	0.84	0.00	0.00
	Config2	0.915	0.84	0.00	0.00
	Config3	0.787	0.62	0.14	0.02
	Config4	0.907	0.82	0.00	0.00
ITO orchestrating capability	T1	0.850	0.72	0.00	0.00
	T3	0.911	0.83	0.14	0.02
	T4	0.685	0.47	0.10	0.01
	T5	0.757	0.57	0.10	0.01
Average		0.790	0.63	0.006	0.01

Appendix D

Although our model did not hypothesize a mediating effect of contract and relationship management capabilities on ITO success through successful reconfiguration, we performed a test to empirically control for the existence of such relationship. To this end, we compared two models, where in Model 1 contract management and relationship management capabilities were not linked to successful reconfiguration (M1), and in Model 2 they were linked to successful reconfiguration (M2). We tested for the increase in variance explained in successful reconfiguration over and above the explained variance by existing dynamic capabilities in both M1 and M2. We hypothesized that a significant increase in the variance explained by adding the two capabilities would suggest a possible relationship and a mediating effect on ITO success. R^2 for M1 is 0.426 and R^2 for M2 is 0.439. The difference (ΔR^2) is 0.013, which is non-significant for adding 2 predictors. Also, both added links are non-significant ($\beta = -0.123$ and $\beta = 0.109$ respectively). Based on this test and the results obtained we argue that successful reconfiguration is not a mediator for the effect of contract management and relationship management on ITO success (see Table below).

Appendix D. Contract and relationship management effect on successful reconfiguration				
	Variance explained		Effect size	
	R^2	ΔR^2	Effect size ¹	Pseudo F-value $f^2 * (n - k - 1)$
M1: contract management and relationship management capabilities not linked to successful reconfiguration	.426	-	-	-
M2: contract management and relationship management capabilities linked to successful reconfiguration	.439	.013 (M2 - M1)	.022	.022*(152-2-1) = 3.28 (ns)

*** $p < .001$; effect sizes small (0.02), medium (0.15), large (0.35) (Cohen, 1988); $n=152$; k =number of predictors;

¹ $f^2 = (R^2_{\text{Full model}} - R^2_{\text{Partial Model}}) / (1 - R^2_{\text{Full Model}})$