

Business Process and IT Cospecialization: Conceptualization and Suggestions for Future Research

Full Paper

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Abstract

Existing IT alignment literature argues that the potential of IT to create value for firms depends on the use of IT resources to support value chain processes. It also argues that improving IT support for operational value chain processes leads to higher IT alignment at the process-level. However, it does not explain the role of IT in enabling managerial business processes that are central for firms competing in dynamic business environments. This paper extends prior treatments of the link between IT and business processes to explicitly account for potential complementarities between IT and managerial processes. Specifically, drawing on resource-based theory and prior IT alignment literature, we develop the business process IT cospecialization construct to capture complementarities that accrue from exploiting IT resources to enable both operational and managerial processes. Propositions are developed that reveal how business process IT cospecialization creates value for firms under varying conditions of environmental dynamism.

Keywords

IT cospecialization, business process, IT alignment, environmental dynamism, value creation.

Introduction

The strategic use of IT has been the focus of extensive research investigating the effects of IT on firm performance (Kohli and Grover 2008). Most recently, researchers have argued that process-level impacts of IT can aggregate to the firm level and called for further study of the role of IT in supporting business processes (Tallon et al. 2016). For instance, Ray et al. (2005) observed that “IT is deployed in support of specific activities and processes, and, therefore, the impact of IT should be assessed where the first-order effects are expected to be realized” (p. 626). Similarly, Qu et al. (2010) argued that incorporating IT applications into business processes might improve the performance of those processes and subsequently lead to increased firm performance.

A growing body of literature shows that IT creates value by supporting operational business processes within the firm’s internal value chain. For example, Tallon (2008) and Tallon et al. (2016) find that the alignment between IT and value chain processes (namely, supplier relations, production and operations, product and service enhancement, sales and marketing, and customer relations) increases IT business value. By extending past studies on the impacts of IT at the firm level, Tallon et al. uncover performance implications for IT at the process level.

This literature focuses primarily on the link between IT and operational processes, i.e. IT alignment at the process-level, to enable competitive advantage based on operational excellence, customer intimacy, or product leadership strategies (Tallon et al. 2016; Tallon 2012). However, the emphasis on operational value chain processes and market positioning overlooks the role IT plays in enabling managerial business processes that are central for firms competing in dynamic business environments. This is an important limitation of existing IT alignment literature because when business environments become more dynamic,

the importance of managerial processes increases while operational processes can become less valuable and lead to competitive parity (Melville et al. 2004; Sirmon et al. 2007; Teece et al. 1997).

Moreover, resource-based theories argue that in dynamic environments firms create value based on managerial processes that enable the identification, coordination, and deployment of capabilities to exploit market opportunities as they emerge (Sirmon and Hitt 2009; Sirmon et al. 2007). Unlike operational processes that are concerned with primary business functions, managerial business processes refer to the patterns of managerial practice and learning by which firms identify and exploit opportunities (Sirmon et al. 2007; Teece et al. 1997). Understanding the relationship between IT and these processes is an important area of inquiry that has received limited attention in prior literature (Mithas et al. 2011).

The purpose of this study is to extend prior treatments of the link between IT and business processes to improve our understanding of how process-level impacts of IT influence organizational value creation. Drawing on resource-based theory (RBT), we propose that the potential of IT to create value depends on whether IT resources and key business processes (both operational and managerial) reinforce each other, i.e., whether they are *complementary*. According to this perspective, the concept of IT support, which has been a cornerstone of IT alignment research for decades (Coltman et al. 2015; Queiroz 2017), is necessary but insufficient to capture the two-way relationship between IT and business processes. Therefore, extending past treatments of the link between IT and business processes can contribute to our understanding of IT impacts and spur further theory development in the field. This paper focuses on these issues, guided by the following research questions:

- RQ1: *What are the key underlying mechanisms linking IT and business processes?*
 RQ2: *How does the link between IT and business processes (both operational and managerial) impacts organizational value creation under varying conditions of environmental dynamism?*

To address these questions, we first advance a new conceptualization of the link between IT and business processes. While prior literature conceives of the link between IT and business process in terms of IT support and IT alignment, we draw on RBT to develop the *business process IT cospecialization* construct. With cospecialization, joint use of organizational assets is value enhancing and therefore it explicitly captures complementary relationships. In other words, cospecialization occurs when “the value of an asset is a function of its use in conjunction with other particular assets” (Teece 2007, p. 1338). Therefore, it captures complementarity effects that accrue when resources and business processes are co-dependent. Our conceptualization can be employed to investigate process-level impacts of IT, regardless of the particular process studied, whether it is operational or managerial, and where it is executed. It extends prior IT alignment and IT support research from an emphasis on either the organization or the value chain to consider the business process itself as the unit of analysis.

Second, we identify and discuss opportunities for future research that builds on our conceptualization of business process IT cospecialization. Drawing on prior RBT and competitive advantage research, we develop propositions that contend that process-level effects of IT can improve organizational value creation. In particular, we propose that these effects are contingent on whether IT and business processes are complementary, the types of processes enabled by IT, and the level of environmental dynamism.

Theoretical Background

Prior research has investigated process-level impacts of IT and how those impacts translate into increased firm performance (Devaraj and Kohli 2003; Ravichandran and Lertwongsatien 2005). Recently, there has been increased interest in understanding how the alignment between IT and business processes leads to increased firm performance (Tallon et al. 2016). This literature suggests that the ability of firms to create value from IT resources depends on whether those resources are employed to support business processes. Below, we review prior research on process-level IT alignment and discuss insights from RBT research to ground our conceptualization of business process IT cospecialization.

IT Alignment and Process-level Impacts of IT

IT alignment is often conceptualized and measured at the firm level of analysis, where researchers capture the extent of fit between firm-wide business strategy and IT strategy (Coltman et al. 2015). However, a

growing body of literature suggests that investigations of the alignment between IT and business processes can enhance our understanding of how firms create value from IT resources (Tallon et al. 2016)

This literature argues that as IT resources become increasingly embedded within business processes, in all sectors of industry, commerce, and government, they play a key role in enabling the routines that are necessary to achieve strategic goals and improve firm performance. Accordingly, existing research recommends that the performance effects of IT should be investigated at the process level (Pavlou and El Sawy 2006; Ray et al. 2005; Tallon et al. 2016). This is the case because IT is usually employed to enable business processes, and its impacts are most likely to be visible at the process level. Consistent with the thesis that the effects of IT are most visible at the process level, Tallon (2012) found that the extent of alignment between IT and a given value chain process not only affects IT business value at that process, but also affects the IT business value of downstream processes within the firm's value chain.

Moreover, firm-level investigations of IT impacts do not reflect the heterogeneity in the processes that enable business strategy, and in the manner in which firms deploy IT to support their strategies. For example, Tallon (2008) found that firms pursuing an operational excellence strategy emphasized alignment in supplier relations and production processes over other processes; in contrast, firms pursuing a customer intimacy strategy emphasized alignment in sales and customer relations. Focusing on process-level impacts of IT allows researchers to capture the heterogeneity that exists within business processes, and can provide explanations for why some firms are better than others in creating value from IT.

While the growing body of literature on process-level IT alignment provides important insights into the link between IT and business processes, further advances are required to investigate the effects of IT beyond the notion of IT support to value chain processes. The role of IT in enabling other operational and managerial processes is an important area of research because business processes deserve study in their own right, and commonly available resources such as IT can create value when exploited through business processes (Ray et al. 2004). As Ray et al. (2004) explain, organizational resources such as IT may have the potential for generating competitive advantage; but this potential can only be realized if these resources are integrated with complementary business processes. In this context, building IT support to business processes and ensuring alignment is necessary but insufficient to create competitive advantage. This suggests that extending prior treatments of IT alignment can enhance our understanding of how IT and business processes relate to each other and how they jointly create value for firms.

Resource-Based Theory (RBT) and Managerial Business Processes

RBT posits that a firm's ability to create and appropriate value stems from differences in the possession of resources as well as through the decisions by managers about how to manage existing resources to enhance resource alignment (Sirmon et al. 2007; Sirmon et al. 2011). Sirmon and colleagues define resource management as the comprehensive process of "structuring, bundling and leveraging the firm's resources" with the purpose of creating value (2011, p. 1392). Both structuring and bundling are based on building capability through the acquisition and accumulation of resources.¹ The potential of those resources to create value depends on their properties (that is, the rare, valuable, nonimitable, and nonsubstitutable properties of resources), which in turn depends on whether resources are integrated with complementary organizational routines and processes.

Once the resource portfolio is built, the challenge is to use existing resources to enable business strategies by means of three key managerial processes: *mobilizing*, *coordinating*, and *deploying* (Sirmon et al. 2007).² These processes are strategic because they refer to managerial routines concerned specifically with the use of organizational resources and capabilities to craft and execute business strategies in rapidly changing environments. These business strategies are referred to as leveraging strategies.

¹ Resources refer to the tangible and intangible assets controlled by an organization, while capability is defined as the organization's ability to perform a coordinated set of tasks, utilizing resources, for the purpose of achieving a desired end (Sirmon et al. 2007).

² Sirmon et al. (2007) refer to these business processes as "leveraging processes". We use the term strategic processes to avoid confusion with the concept of IT leveraging in existing IS literature.

The notion of *leveraging strategy* emphasizes a resource-centered perspective on strategy based on RBT's logic of leverage (Sirmon et al. 2007). As Sambamurthy et al. (2003) explain, the logic of leverage on strategy differs markedly from the logic of positioning, which focuses on industry competitive forces and profitability of the firm's market position. Instead, leveraging strategy is based on the management of organizational resources and capabilities to exploit temporary market opportunities as they emerge. This perspective is particularly salient in dynamic environments where market opportunities emerge and disappear quickly, making sustained competitive advantage difficult to achieve. Sirmon and colleagues (2007) identify three distinct leveraging strategies to capitalize on emerging market opportunities: *resource advantage strategy*, *market opportunity strategy*, and *entrepreneurial strategy*.

Whether a firm focuses on distinctive internal competencies to exploit resource advantages (e.g., resource advantage strategy), or external contingencies to capitalize on innovation or new markets (e.g., entrepreneurial strategy), the mobilizing, coordinating, and deploying processes are required to enable the chosen strategy. As Sirmon et al. (2007) explain, these managerial processes enhance the ability of firms to effectively utilize capability configurations and exploit opportunities in dynamic environments. Prior literature indicates that IT plays an important role in supporting each one of these processes, as illustrated in Table 1. The Table describes these processes and reveals those application areas where IT has previously been employed. For instance, IT plays an important role in enabling strategic processes by facilitating rapid data exchange (Subramani 2004), capability deployment (Fichman 2004), and by supporting business coordination (Bharadwaj 2000). The studies reported in Table 1 suggest that linking IT with complementary strategic processes can enhance value creation.

Strategic Process	Description	Related Applications of IT in Extant Literature
Mobilizing	"The process of identifying the capabilities needed to support capability configurations necessary to exploit opportunities in the market" (Sirmon et al. 2007, p. 277)	Data exchange (Subramani 2004); IT-enabled market surveillance (Pavlou and El Sawy 2006)
Coordinating	"The process of integrating identified capabilities into effective yet efficient capability configurations" (Sirmon et al. 2007, p. 277)	IT relatedness (Tanriverdi 2005); Business/IT integration (Bharadwaj 2000)
Deploying	"The process of physically using capability configurations to support a chosen leveraging strategy" (Sirmon et al. 2007, p. 277)	Modular IT platform for rapid capability deployment (Fichman 2004); IT-enabled change (Sambamurthy et al. 2003); IT-enabled market responsiveness (Bharadwaj 2000)

Table 1. Strategic Processes and the Potential Application of IT

However, the extent of value created by IT depends not only on the link between IT and business processes but also on factors external to the firm (Melville et al. 2004). Specifically, recent research indicates that the degree of environmental dynamism affects the way IT is utilized to create value (Melville et al. 2004; Pavlou and El Sawy 2006; Chen et al. 2015). For example, Pavlou and El Sawy (2006) find that the ability of firms to effectively utilize IT to create value in new product development is affected by environmental dynamism. Similarly, Chen et al. (2015) show that the impacts of IT usage on organizational value creation depends on environmental dynamism. This body of research suggests that environmental dynamism is an important moderating factor to explain how the link between IT and complementary strategic processes impacts organizational value creation. We summarize the above arguments in Figure 1.

While this discussion highlights the role of IT in creating value, the ways in which the link between IT and business processes enable superior value have yet to be clearly articulated. RBT argues that the extent to which IT creates value is conditional on its strategic potential, which in turn, is contingent on complementarities between IT and other organizational resources (Melville et al. 2004; Nevo and Wade 2010). As Nevo and Wade (2010) explain, the components of a complementary relationship work together

to create value that cannot be created by the components in isolation. They further explain that resources such as IT can facilitate complementary and synergistic outcomes provided they are used in conjunction with other resources in a way that enables greater alignment. In particular, IT and other resources are in alignment when “the features and functionalities of the latter fit, or are congruent with, the working routines, level of expertise, and other characteristics of the former” (Nevo and Wade 2010, p. 170).

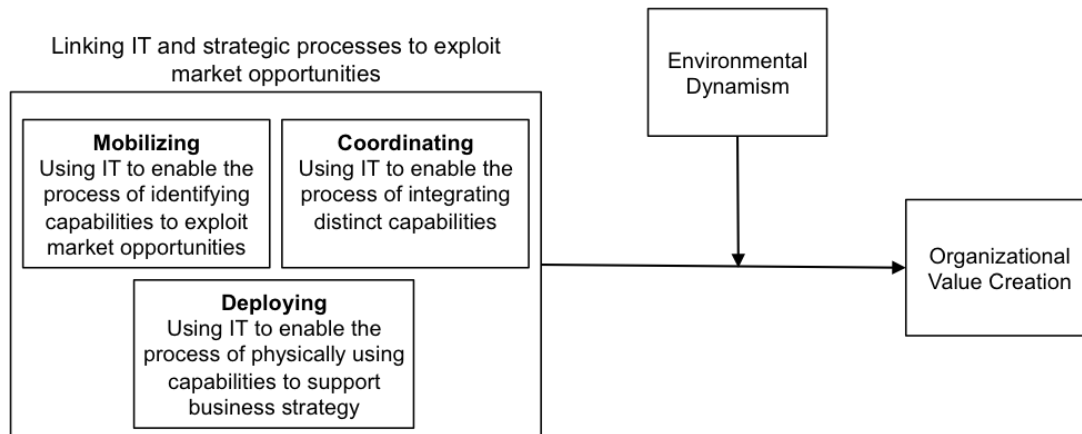


Figure 1. Strategic Processes, IT and Value Creation

Teece (2007) further explains that the key dimension of alignment emphasized in RBT is that of *cospecialization*. The notion of cospecialization refers to a condition where “the value of an asset is a function of its use in conjunction with other particular assets” (Teece 2007, p. 1338). It implies that a complementary relationship exists and that one asset has little value without another (Milgrom and Roberts 1995; Teece 1986; Teece 2007). This suggests that complementarity effects of the relationship between distinct assets are contingent on the extent of cospecialization.

While past research focused on cospecialization of assets (Teece 1986), a growing body of literature shows that cospecialization is a promising perspective through which we can examine the way organizational resources and processes create value for firms. For instance, Teece (1986) examines the role of innovation-specific cospecialized assets in enabling successful product innovation. Gans et al. (2002) suggest that cospecialization between a new technology and complementary assets needed to commercialize that technology affects the cost of entering the product market. More recently, Ceccagnoli and Jiang (2013) found that cospecialization between upstream and downstream value chain processes affects value creation in technology markets.

When discussing the need for firms to foster cospecialization to create value from IT resources, Tippins and Sohi (2003) explain that a firm possessing the necessary IT to support business functions will realize little value if it does not have the necessary business processes to use IT effectively. Similarly, Piccoli and Ives (2005) argue that realizing value from IT requires leveraging complementary resources via cospecialization. According to this value creation logic, the possession of resources such as IT to support business functions is necessary but insufficient to realize superior value. Firms must fully utilize or exploit existing IT resources and capabilities through their business processes to capitalize on market opportunities (Melville et al. 2004; Pavlou and El Sawy 2006).

This discussion is in line with prior research on the dual role of the IT function as both a supporting tool and a driver for the business. In the context of process-level IT alignment, the IT resource base provides an important mechanism to build and maintain adequate support for business processes (Tallon et al. 2016). In turn, it is expected that business processes will fully exploit the IT resources provided. This implies that the value of IT is a function of its use in conjunction (that is, cospecialization) with business processes. In other words, a firm’s ability to generate superior value based on cospecialization between IT and a business process is likely to depend both on the extent to which IT *supports* the business process *and* the extent to which that business process *exploits* available IT. The logic of cospecialization provides a resource-based theoretical base that we apply next to conceptualize business process IT cospecialization.

Conceptualizing the Business Process IT Cospecialization Construct

Construct conceptualization involves the specification of the construct domain and development of a theoretical definition that identifies what the construct is intended to represent (MacKenzie et al. 2011). Below, we articulate the conceptual domain of the business process IT cospecialization construct and its boundaries. The development of a theoretical definition for the construct follows.

Conceptual Domain of Business Process IT Cospecialization

To identify the theoretical domain of the business process IT cospecialization construct, we draw on Venkatraman's (1989) approach to construct domain specification. Venkatraman identifies three key aspects to domain specification that are relevant to our conceptualization: circumscribing the scope of the construct, identifying the unit of analysis, and identifying whether the construct refers to realized or intended characteristics of the phenomenon of interest.

A) Scope of the Business Process IT Cospecialization Construct: A body of literature often includes multiple conceptualizations of constructs that differ in the scope of the phenomenon being captured. Thus, it is important to clearly specify the boundaries of the construct being conceptualized. For example, in developing the STROBE construct, Venkatraman (1989) identifies multiple conceptualizations of strategy that differ in the scope of the construct. Similarly, prior alignment literature has conceptualized IT alignment in two distinct ways. One conceptualization conceives of alignment as a process through which IT and strategy influences each other over an extended period in time. In contrast, the more dominant perspective underpinning empirical research on alignment conceives of IT alignment as a state measure reflecting the relationship between IT and strategy at a point in time (Coltman et al. 2015).

Consistent with our objective to extend the growing body of work that examines the state of process-level IT alignment (Tallon 2008), we focus on the state of alignment between IT and business process. As discussed above, RBT literature argues that cospecialization captures alignment in the context of complementary resource relationships. It also argues that business value is a function of cospecialization between IT and business processes. Accordingly, we conceive of the link between IT and business process in terms of the extent of cospecialization.

B) Unit of Analysis of the Business Process IT Cospecialization Construct: Another aspect of construct conceptualization is to clarify the unit of analysis. In the IT alignment literature, most discussions and measures of alignment employ the organization as the unit of analysis. More recently, alignment studies have highlighted the role of IT at the process level (Tallon 2008; Tallon et al. 2016). A key assumption underlying this stream of research is that organizations can be conceived of as bundles of processes. As Ray et al. (2004) explain, business processes are repetitive and enduring patterns of interdependent actions or routines through which particular business objectives are achieved. While the conceptualization of business process IT cospecialization in this paper can be generically employed to examine each one of multiple business processes, our conceptualization focuses on the relationship between IT and a business process. Here, we clarify that the unit of analysis for the business process IT cospecialization construct is the business process. This is in line with arguments in prior research that individual business processes provide the bases for understanding the ways in which firms benefit from IT (Melville et al. 2004).

C) Intended or Realized Cospecialization: The literature on IT alignment distinguishes between realized and intended strategies. Intended alignment is typically measured as the fit between a firm's business plans and its IT plans. In contrast, realized alignment refers to the fit between actual business and IT strategies. For instance, Sabherwal and Chan (2001) explain that their conceptualization of IT alignment focuses on realized rather than intended strategies. Therefore, their study measures realized alignment based on actual strategies that reflect what organizations are doing, rather than what they plan to do. Here, we conceptualize business process IT cospecialization in terms of realized IT-business process complementarity. Thus, measurements of business process IT cospecialization need to be based on the actual state of the link between IT and a business process rather than expected future states.

Definition of Business Process IT Cospecialization

Our articulation of business process IT cospecialization acknowledges the two-way nature of the relationship between IT and the business domain. It is based on the extent of complementarity between

IT and a business process, which implies a mutual dependence of IT and the business process in creating value for firms. We draw on prior research on resource management and value creation (Ray et al. 2004; Nevo and Wade 2010; Sirmon et al. 2011) to distinguish between the “support” and “exploitation” attributes of resources. In particular, this stream of research suggests that synergistic outcomes of the use of IT, in conjunction with a business process, are likely to depend on the extent to which IT supports the business process *and* the extent to which the business process exploits available IT. In the context of the business process IT cospecialization construct, *IT support* refers to the extent to which existing IT resources meet the IT needs of a business process, while *IT exploitation* refers to the extent to which that business process leverages available IT. Taken together, IT support and IT exploitation are two key attributes of the phenomenon of interest; that is, the cospecialization between IT and a business process.

The theoretical definition of the business process IT cospecialization construct can then be written as: *the state of complementarity between business process and IT, based on the extent to which IT supports the business process and the extent to which that business process exploits available IT.*

As previously noted, our articulation of cospecialization implies that the combination of IT support and IT exploitation is value enhancing. Thus, it implies that to maximize value, business process IT cospecialization requires both IT support and IT exploitation. Further, the magnitude of any cospecialization is reflected in the degree of covariation or interaction between the attributes (Venkatraman 1989). This construct can serve as a referent to spur future empirical research in the field.

Future Research on Business Process IT Cospecialization

In this section we introduce propositions to help drive future research on IT cospecialization. We begin by discussing the role of business process IT cospecialization in creating value beyond operational value chain processes. Moving from the general to the specific, we then discuss the role of IT in enabling strategic processes that are more likely to create value for firms as market opportunities emerge.

Creating Value Through Business Process IT Cospecialization

While IT resources are susceptible to replication by competitors, combining them with complementary business processes can be causally ambiguous to the extent that it is difficult for competitors to identify how IT generates value for the organization (Tallon 2008). Recently, researchers have examined the value created by IT for particular business processes. For example, Ray et al. (2005) investigate the differential effects of various IT resources on the performance of the customer service business process. Similarly, Tallon (2008) examines the performance outcomes of the alignment between IT and five operational business processes within the firm’s value chain. The study finds that the alignment between IT and each value chain process is a predictor of the business value created by IT for that particular process. However, the focus of extant research on operational value chain processes overlooks the role of IT in enabling managerial business processes that are more likely to create superior value for firms.

Important managerial processes such as resource allocation, analytical decision-making, and coordination processes have all received little attention in past IT alignment literature. This is an important omission because extant research reveals that IT plays a key role in enabling managerial business processes. For example, prior literature shows that IT creates value for managerial processes such as knowledge management (Tanriverdi 2005), external relationship management (Bharadwaj 2000), and resource deployment (Fichman 2004). Further research is warranted to explain how the link between IT and complementary business processes, which we conceptualize above through the business process IT cospecialization construct, creates value for firms beyond operational value chain processes.

Business Process IT Cospecialization and Strategic Processes

While the above discussion implies that IT generates value when combined with various business processes, the extent of value created for a given business process is contingent on factors such as the scope of the process, the extent to which it is strategic to the organization, as well as external contingencies such as environmental dynamism (Melville et al. 2004; Pavlou and El Sawy 2006). Sirmon et al. (2007) take account of these factors to investigate which specific processes are more likely to create superior value for firms. They explain that various managerial business processes are required to

structure a firm's resource portfolio and bundle resources to build capabilities. Then, different managerial processes are needed to leverage those capabilities to optimize value creation. While business processes aimed at structuring and bundling resources are essential for building capabilities, the managerial processes described in Table 1 are particularly important for value creation because they are strategic, i.e., they directly support leveraging strategies required to exploit market opportunities (Sirmon et al. 2007).

As previously noted, Sirmon et al. (2007) identify three distinct leveraging strategies to capitalize on emerging opportunities: *resource advantage strategy*, *market opportunity strategy*, and *entrepreneurial strategy*. The intent of the first strategy is to leverage resource configurations that provide a distinctive competence to the organization. An organization that possesses distinctive competencies can create value to customers that exceeds the value created by competitors. The second strategy, exploiting market opportunities, requires a strong external focus to quickly identify potential opportunities, assess the competitive gains associated with those opportunities, and examine whether the organization has capabilities that can be configured to exploit them. The entrepreneurial strategy involves the integration of existing and new capabilities into capability configurations that produce products and services required by new customer segments and new markets.

The ability of firms to create value based on these strategies is contingent on the execution of the strategic business processes discussed above, namely mobilizing, coordinating, and deploying (Sirmon et al. 2007). However, as IT resources become increasingly embedded within business processes, a high degree of business process IT cospecialization is needed to ensure that firms excel in the execution of each one of those processes. By fostering cospecialization between IT and those strategic business processes, firms will be better able to leverage existing organizational capabilities and, in turn, exploit market opportunities to create value. Thus:

Proposition 1: The extent of cospecialization between IT and the strategic processes needed to execute leveraging strategies (namely mobilizing, coordinating, and deploying) will have a positive effect on the organization's ability to leverage existing capabilities to create value.

Further, the environment in which the firm operates affects the way IT is used and the role of cospecialization in creating value. For example, prior literature shows that industry characteristics affect not only the extent to which firms can apply IT successfully, but also the extent of value that can be generated by IT (Sambamurthy et al. 2003; Melville et al. 2004; Pavlou and El Sawy 2006). The greater the degree of environmental dynamism, the faster the pace of IT configuration, reconfiguration and deployment required to execute strategic processes (Pavlou and El Sawy 2006). In this context, opportunities to apply IT in response to changing market conditions increase (Melville et al. 2004) and IT becomes a key mechanism through which firms exploit market opportunities.

While employing IT to enable managerial processes is a key business imperative under varying market conditions, recent literature suggests that it is particularly relevant in dynamic environments that require rapid response to market changes (Pavlou and El Sawy 2006). A firm's ability to make rapid, high-quality decisions about how to exploit its capabilities strongly influences the amount of value it creates (Sirmon et al. 2007). If the cospecialization between IT and strategic processes enhances the ability of firms to (a) quickly identify valuable capabilities to exploit opportunities in the market and (b) integrate those capabilities and deploy them faster than competitors do to create value, it will help firms to cope with fast changing environments. This implies that environmental dynamism is an important moderating factor on the relationship between business process IT cospecialization and value creation. Accordingly:

Proposition 2: The greater the degree of environmental dynamism, the greater the positive effect of cospecialization between IT and strategic processes (namely mobilizing, coordinating, and deploying) on the organization's ability to create value.

Discussion and Conclusions

This study draws attention to an important gap in the evolving literature on process-level IT alignment. Specifically, the need to extend the focus of alignment studies beyond operational value chain processes to build and test theories about other business processes that create value for firms. Drawing on the IT alignment and RBT literatures, we advance a new conceptualization for the link between IT and business process, namely business process IT cospecialization. Our conceptualization extends the current

literature, where either the organization or the value chain is employed as the unit of analysis, to capture the link between IT and a business process regardless of the particular process studied, whether it is operational or managerial, and where it is executed. As Weber (2003) explains, articulating new constructs that capture existing or emerging phenomena is an important first step towards theory building.

We conceive of business process IT cospecialization in terms of IT support and IT exploitation to capture complementary relationships between IT and business processes. This implies that the value of IT is a function of both the extent to which it supports business processes and the extent to which those business processes leverage IT. An important distinction between our conceptualization and existing approaches to process-level IT alignment is that with those approaches the responsibility for business process digitization rests with the IT department. In contrast, IT cospecialization explicitly accounts for the role of business managers in leveraging available IT resources (e.g., new business analytics tools) to drive business process improvements. Each business process, therefore, is associated with its own magnitude of business process IT cospecialization, which in turn might affect the value created by IT for that process.

Existing research suggests that as business environments become more dynamic, operational value chain processes trend towards competitive parity (Melville et al. 2004; Sirmon et al. 2007). In this context, managerial business processes are needed to leverage organizational capabilities to exploit market opportunities as they emerge. Examples include market surveillance, capabilities coordination, and capabilities deployment processes (Pavlou and El Sawy 2006). The role of IT in enabling these and other managerial business processes is a promising area of research to extend prior literature.

For business executives who may be concerned with creating value from IT investments, this study suggests that firms should seek to build complementary resources and integrate them with managerial processes to increase cospecialization. It also suggests that strategic business processes outside the core value chain can be a source of value creation when integrated with IT, in particular, in dynamic business environments. Hence, managers should ensure that attention is directed towards the cospecialization of IT not only with primary value chain processes that underpin core operations, but also, with strategic processes that seek to exploit new market opportunities as they arise.

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