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Understanding the IT/business partnership: A business process perspective

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Abstract From a business process perspective, the business value of information technologies (IT) stems from how they improve or enable business processes. At the same time, in the field of strategic IT/business alignment, the locus of discussion has been how IT/business partnerships enhance the value of IT. Despite this apparent relationship, the business process perspective has been absent from the IT/business alignment discussion. In this paper, we use the case of an industrial company to develop a model for understanding IT/business partnerships in business process terms. Based on our findings, we define these partnerships by allocating responsibilities between central IT and the local business during two stages of a process lifecycle: formation and standardization. The significance of the findings lies in how the model's configuration leads to different types of IT units' process centricity. This in turn affects the ability of the company as a whole to transform its operations with IT.

Keywords IT/business alignment · Strategic use of IT · Business process management · Case study

1 Introduction

In a recent survey of 243 companies, IT managers named their main concerns (Luftman and Ben-Zvi 2010). Top of the list were: business productivity and cost reduction; IT and business alignment; business agility and speed to market; and business process re-engineering, in that order. The recent global economic recession has put even more pressure on companies to increase the efficiency, speed and flexibility of their processes. High importance is accorded to tying IT more closely with the rest of the organization in reaching these objectives.

The convergence between management of IT and business processes increases in both research and practice. Theoretically, IT is viewed as peripheral to Business Process Management (BPM) (Hammer 2010). Henry Ford can be considered the originator of BPM, owing to his introduction of assembly lines in his factories in the early 20th century, long before the invention of computers. Nevertheless, in contemporary economic practice, the sheer amount of information produced in companies by far exceeds the processing capabilities of the workforce (Abbott 1999) and technology becomes an indispensible component of corporate processes. This is confirmed by analysis of recent BPM literature, which shows that technology is the second-most prominent concept in the BPM field (after "management") (Møller et al. 2007).

Studies spanning IT management and BPM have long agreed that the value of IT is derived from the improvements it drives and enables in processes (Davenport 1993; Smith and Fingar 2003). On the one hand, IT allows for improvement of existing processes by offering accelerated data processing, transmission and tracking (Davenport 1993). On the other hand, it is an enabler of new processes that would otherwise be unviable (Srivardhana and Pawlowski 2007). Building effective technology/business partnerships to foster improvement and development of business processes is therefore crucial for both efficiency and innovation-related organizational growth. As most companies delegate management of IT to a separate IT function, the core of IT/business partnerships is the alignment of the IT function with the rest of the organization (Luftman 2003).

The objective of this study is to deepen our understanding of IT/business partnerships from a BPM perspective. We

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begin our argument with the claim that the BPM perspective is underexplored in the IT/business alignment literature. Consequently, we develop a model to frame the understanding of IT/business partnerships in business process terms. The model is created based on insights from a case study examining process aspects of IT practices in the IT unit of a global company. As a next step, we extrapolate the model to derive a set of IT archetypes constituting different types of IT/business partnerships. Finally, we conclude with a brief summary of the findings and discuss implications for future research.

2 Literature review

Ensuring that IT activities are carried out in accordance with the business needs of the organization has been the locus of discussion in the IT/business alignment literature (Chan and Reich 2007). Although authors differ as to the postulated objectives and domain of alignment, the common premise is to foster a productive and successful relationship between IT and the business. According to Henderson and Venkatraman (1999), this can be done by establishing patterns of interaction between the internally and externally oriented perspectives of business and IT. Luftman et al. (1999), Fonstad and Subramani (2009) and De Haes and Van Grembergen (2009) detail sets of factors driving and inhibiting alignment and develop models for assessing and instantiating them in an organization. Fonstad and Robertson (2006) and Preston and Karahanna (2009) argue that the essence of alignment is linking the activities of corporate, divisional and project levels of IT and BPM.

Notably, a majority of research endeavors in the alignment discussion has treated IT and the business as diverse and separate organizational areas (Peppard 2004). This approach has been criticized as creating artificial boundaries, which in themselves lead to misalignment. The claim is that, since IT permeates all aspects of organizational activity, it should be organized in a way that reflects this.

While organization of the IT function signifies an important part of the alignment discussion, it had been studied long before this stream of research was even conceived. Dating back as far as the 1960s, the debate of centralized versus decentralized structures in IT governance is one of the most mature ones in the information systems field. In the beginning, most of the argumentation revolved around whether activities perceived as belonging to the domain of IT should be centralized or performed locally in the business units (Brown and Grant 2005). Subsequently, intermediate forms of governance, known as hybrid or federal governance, were developed (Brown 1997). The variety of possible configurations has been defined (Brown and Magill 1998) and examined in terms of applicability factors (Sambamurthy and Zmud 1999). Within the industry, several versions of the CobiT framework (ITGI 2007) were developed, constituting a bottom-up approach to developing governance and control mechanisms within an organization through the application of indicators, measures and recommended best practices. Eventually, the traditional IT governance approach faced criticism for being too function-oriented and therefore failing to recognize other important determinants of IT organizational success, such as integration mechanisms, IT capabilities, different measures of success, and relationships with business units (Schwarz and Hirschheim 2003).

More importantly, however, it was recognized that the impact of IT governance decisions goes well beyond technology alone. Implementing standard software requires adjusting the processes to fit the underlying logic embedded in the application (Robey et al. 2002). At the same time, establishing new processes is dependent on the organization's IT capability to amend the system through configuration or tailoring (Shanks et al. 2003). Therefore, standardized systems platforms impose enterprise-wide constraints on how the business will perform processes that are executed with those systems (Davenport 1998), while at the same time local flexibility in process design often leads to a challenging IT landscape (Weill and Ross 2004). Governing IT means defining decision rights, which, intentionally or not, impact business processes.

Discussing centralized and decentralized IT is therefore equivalent to discussing the balance between harmonizing systems and process and fostering flexibility at the expense of co-ordination. As a result, the IT function cannot be fully detached from the rest of the business owing to alignment reasons, but at the same time cannot be entirely distributed across the organization because of the required co-ordination effort. It is therefore safe to assume that, even with the pervasive presence of IT in all areas of organizational activity, IT units will exist in the future, but they will be challenged in how they support the organizational goals with improving and enabling business processes.

The IT/business alignment literature only provides a partial answer to how IT units can improve and enable business processes. Authors have widely discussed how to align IT and business strategies (Boddy and Paton 2005; Cragg et al. 2002; Jenkin and Chan 2009; Mehta and Hirschheim 2007; Palmer and Markus 2000); establish communication channels between representatives from the two domains (Chan 2002; Fonstad and Robertson 2006; Luftman 2003) and create governance structures separating their responsibilities (Van Grembergen and De Haes 2009) in order to facilitate development of a common understanding of the problems (Johnson and Lederer 2005; Kearns and Sabherwal 2007); work out common goals (Benbya and McKelvey 2006; Reich and Benbasat 1996); project portfolios (Avison et al. 2004) and

plans (Kearns and Lederer 2000). All of these perspectives contribute to enhancing value-creation through IT, yet notably absent is the business process perspective. While a body of knowledge does exist on the topic of aligning IT systems and business services (e.g. Karagiannis et al. 2007; Demirkan et al. 2009), the organizational IT/business alignment perspective in the organizational perspective business processes are not an important element of the proposed alignment frameworks and IT is predominantly viewed as a technology center, not a driver or an enabler of business processes. Where the studies do mention a "process perspective", they are concerned with the process of building IT/business alignment, not business processes in themselves (c.f. Jenkin and Chan 2009).

The lack of convergence between alignment studies and BPM is surprising, given that the IT/business alignment literature seeks to increase the organizational value of IT, which in turn is delivered through new or improved business processes. In light of this paradox, we argue that in order to fully understand the IT/business partnership, a business process perspective is necessary. The perspective informs how the two organizational domains engage in joint efforts to transform the business. Developing this perspective is the key motivation for this paper.

3 Methodology

In order to meet the research objective, a case study method has been selected. It is useful to employ a case study method when studying organizational aspects of information systems (Benbasat et al. 1987), especially when the aim is to build a new theory (Eisenhardt 1989). The case study method corresponds well with the research objective of framing an initially unclear and fragmented problem, because it is able to address organizational phenomena whose boundaries are unclear or complex (Benbasat et al. 1987). Benbasat et al. (1987) and Yin (2008) advocate the use of case studies when dealing with contemporary events over which the researcher does not exert control, as is the situation here, where intervention would contradict the objective of understanding. Finally, case studies are found useful to investigate phenomena in conjunction with their context and therefore support our understanding of IT as a socio-technical entity (Orlikowski 1992). A single, embedded case (Yin 2008) is used in this paper, focusing on an IT organization within a large company. It is conducted to study IT/business partnerships with the objective of enriching understanding of these partnerships from a BPM perspective.

3.1 Data collection

The data for the case have been gathered using multiple sources. The primary source is interviews. A total of ten semi-structured interviews were conducted with staff of the central IT unit of a large company. Nine of the interviews were conducted face-to-face and one over the telephone. The face-to-face interviews were recorded and transcribed and the phone interview was documented by means of taking live notes. In order to reveal the de facto state of the phenomenon, the interview guides were conducted in an explorative manner, giving the interviewees the freedom to elaborate on their experiences and share personal insights and opinions.

Topics covered in the interview guides spanned three areas: general understanding of the organization and selected aspects of business process; the IT unit's operation, tasks and personal experiences in implementation projects; and familiarity with business problems and interaction with the customers. The case study was supplemented by the analysis of related documents, memoranda, personal meeting notes and the company's intranet resources, from which the official corporate policies for IT project management and a strategy statement have been obtained. The additional sources were used to assess the state of the desired IT/business partnership and helped verify the interview results.

3.2 Data analysis

Data analysis was conducted using a coding procedure proposed by Strauss and Corbin (1990). This approach is useful when developing a theory without a prior hypothesis, but with the support of existing theoretical perspectives. The analysis was done using the Atlas.ti software. It started with open coding, in which case data were examined in order to derive the ideas commonly discussed by the respondents. At this step, a total of 68 code instances were identified in the material. The instances were then iteratively grouped according to shared semantic properties. The final set of categories is presented and discussed in the findings section. In the following step, axial coding, relationships between the groupings were established through a series of iterations in which the research objective and the data interacted to form a consistent outcome. The results of this step are discussed in the section on conceptualizing IT/business partnerships. In the final stage, selective coding, the core categories were established, representing the incidences connected to most other categories and therefore constituting the axis of understanding of the studied phenomenon (section on understanding the IT/business partnerships). The axial and selective coding formed the essence of case-based theory building (Eisenhardt 1989).

4 Case study: the IT/business partnerships at Delta

4.1 Context

The empirical context of the case is Delta, a large industrial company with headquarters in Scandinavia. The company has sales in over 100 countries across the globe and manufactures its products in more than 50 countries. To serve the variety of global markets with a diversified product portfolio, the company has been organized into four divisions. Three of these are subdivided according to the branch of industry they serve and these subdivisions are further split into four or five business areas. The fourth division provides a variety of shared services for the rest of the organization, ranging from operating canteens to an advertising agency. The service division is also home to the central IT unit.

In the past year, Delta has been implementing a new strategy focused on reinforcing its internal alignment. The IT unit is expected to be an important player in this implementation by acting as a centralized provider of business solutions. It will be responsible not only for the design and maintenance of SAP, which is the corporate systems platform, but also for the design and delivery of standardized and unified processes. Delta realizes that, in order to fulfill this objective, it needs strategically to reposition the IT unit, because so far it has been known for its technological orientation. However, before Delta can do this, the company needs to understand how its IT/business partnerships contribute to organizational process transformation endeavors and, consequently, what it needs to change before implementing the new strategic role of the IT unit.

4.2 Findings

This section presents the findings related to IT/business partnerships at Delta and their impact on organizational business process transformation efforts. The findings are the result of the open coding step in data analysis. The coding revealed 10 categories, which represent commonalities in the management practices highlighted by the employees of the IT unit at Delta. The categories are discussed below.

Category 1: Decentralization culture resulting in business silos

A dominant view among the respondents was that the business displayed "silo thinking" in defining their process needs. This has been attributed to historical reasons, as the company underwent a strong decentralization trend before the IT era arrived. As one employee stated, at that point "Everyone was supposed to decide how to run their business. And what happened? Everybody had their own customer folder and so it stayed until today." As a result, one customer or supplier might be registered separately by different business areas in the central enterprise resource planning (ERP) system. The decentralization trend also had an impact on the systems landscape. Many developments took place to respond to a particular business need and resulted in the creation of small, local applications. Although some note the benefits of newly attained business flexibility, most respondents agree such solutions are difficult to integrate.

Category 2: Localized process design

One of the results of the decentralization culture is that the line business receives no centrally developed process design guidelines. Processes are developed bottom-up, even in key areas such as logistics, production and sales. Some divisions take up their own initiatives to develop middle-level process guidelines, for example by establishing divisional logistics centers of excellence. There have been attempts by the IT unit to harmonize architecture and introduce unified process designs, however their success depended on the willingness from the local business to comply. As one respondent noted "Sometimes people have been sitting in one room to agree on a solution, but as soon as they went out of the room, everyone did it their own way." One reason for the diverse execution of processes has been resistance to change. As one respondent observed "We have people that are still used to cell phones or paper calendars. [Especially] salespeople are independent and decide how they organize their day."

Category 3: Business units have the final say on the shape of the process

Given the convergence between processes and systems, the central IT unit has been trying to push standardized process designs resulting from "best practice" embedded in the systems. Often a standard solution is proposed to the customer, and, if it is not fully satisfactory, the two sides agree on the necessary modifications. The viability of this approach is entirely dependent on the willingness of the customer to pay the invoice for the developments. For that reason, the largest division profit-wise is the division using the most heavily

customized systems. The only way in which the current set-up encourages joint developments is through the possibility of splitting the cost among several customers.

Category 4: Technology-focused IT competency profile

One of the reasons why the IT unit did not drive local process design was a lack of BPM expertise. As one of the respondents noted "We are technology-oriented. We have employees who know a lot about particular SAP modules, but we do not have anybody who is, for example, an expert in logistics processes." A further inquiry into the relationship between the business and IT aspects revealed that it is not a close one. "There is no specific way to have contact with the business. People here know a little about what's going on out there, based on what they've worked with, but nobody has an overview." The need specification comes from the organizational customer. Business and user requirement specifications are delivered by the business. Based on these, the IT unit creates technical specifications for the solution. This arrangement leaves limited room for driving process designs with technology.

Category 5: Centralized IT governance

The IT function was centralized around the year 2000, meaning that all IT units and staff hired in the business started to report (and, in many cases, were physically relocated) to corporate IT. The rationale behind this was to take advantage of the ability to cut cost using a standardized service portfolio and a shared infrastructure. However, according to the respondents, IT became detached from the business and gradually started acting as a cost-center for business projects. The involvement in business decisions has decreased and, as one employee put it, "It is up to [the business] to agree what they want done. Our role is to send them the bill."

Category 6: Technical IT service portfolio

The centralization of IT had an impact on the portfolio of services the IT unit delivers to the organization. The respondents clearly stated that their tasks are built around the "traditional" IT services: translation of the business need into data models and algorithms; delivery and implementation of solutions; technical support of project teams; development of the ERP system; and integration within SAP and from SAP to other applications. Some respondents claimed responsibility for a particular process (purchasing, HR, etc.) owing to their expertise in a systems module supporting that process, albeit only concerning the technical side of the process.

Category 7: Business/IT hand-off

The IT unit's advisory role to the business is limited to presentation of the available IT tools. The business customer then assesses their applicability to the articulated need. The company uses internal SAP consultants, who are deployed locally in the organization. Their role is to determine whether a particular need can be generalized to a "solution space," so that the technical solutions can be reused around the organization. If a representative of the business approaches the IT unit with a well-defined need for a required functionality, IT representatives assess its viability based on the functionalities of the enterprise system and develop them when required. If the request is rejected, the divisions sometimes develop homegrown solutions that are problematic to the overall systems landscape. An internal audit focusing on customer-facing solutions revealed the existence of 23 customer-facing applications developed independently of central IT.

Category 8: Process ownership located in the business

Although a central and formalized process organization has not been put in place, the respondents indicate that the process ownership lies with the business. The processes are established and executed locally and every change that requires adjustment of the process originates there. One respondent highlighted that the process focus is distributed differently from one division to the other: "Every division has a different focus on which processes are important to them. Some develop local process standards, others are very decentralized." The predominant view is that "IT is good at IT and the business is good at their processes." This view reflects the division of responsibilities.

Category 9: Low customer proximity of IT

During the interview, the respondents were explicitly asked about the meaning of the word "customer" for them. They almost unanimously defined it as referring to the business representatives requesting an IT solution, not the customers buying the company's products. Further inquiry revealed that the understanding of the customers belonging to the business divisions

is very limited. The IT unit is not a part of the daily operations and their processes and the organization's processes are not the same.

Category 10: Business responsibility for process data and the first line of technical support

Some respondents mentioned that "support of the daily business" is part of the IT unit's remit. "The way it works is that, if the user experiences problems, then we have a central phone number they can call and then we pick up and try to help them immediately. If we are not able to, then we register a ticket in our pipeline system and it gets routed further." In this sense, the IT unit can become a part of the process in case it encounters difficulties in execution related to the supporting IT system. This is, however, a "last resort" occurrence, as every systems roll-out project establishes a local "superuser" structure, which provides the first line of support in case of such problems. As far as data are concerned, the business is responsible for feeding them to the system. The quality of the data is also a local responsibility. However, a specialized Business Intelligence IT unit exists, whose task is to extract information from the system for the purpose of management reporting.

The 10 categories above are a result of the open coding step, which aims to identify the main themes present in the case material. They provide evidence and insight into the interdependencies between the practices of the IT unit and the company's ability to transform its processes. In the next step, we will use these categories as a foundation for building a general understanding of the IT/business partnerships in process terms.

4.3 Conceptualizing IT/business partnerships from a business process perspective: an emerging model

The following section describes the findings of axial coding, which is the second stage of our data analysis process. At this step, the categories and concepts are related to each other by establishing purposeful relationships in light of the goal of the study. Our coding paradigm is defined by (1) the studied phenomenon (that is, IT/business partnerships leading to the delivery of new or improved processes; (2) the factors in the organizational context defining the variations in the phenomenon; (3) actual IT management practices representing the manifestation of the phenomenon and (4) the causal relationship spanning the context, variation and outcome of the phenomenon. The analysis leads to the identification of *two dimensions* representing the axis of understanding of IT/business partnerships in business process terms.

4.3.1 Temporal dimension in a process lifecycle context

The *first dimension* pertains to the temporal engagement of the IT unit in business transformation efforts. This engagement is reflected by the groups of activities represented by the categories, some of which are carried out earlier than others (e.g. process design occurs before business/IT hand-off, which in turn occurs before IT commences to support process execution). Given this sequential nature, we divided the categories as belonging to *process formation* (qualified by the respondents through categories 1, 2, 3, 7, 8 and 9) and *process standardization*, qualified by categories 4, 6, 7 and 10 (see Table 1). Category 5 focuses on the static governance element and has not been used in the formulation of the temporal dimension.

The division of these groups of activities is marked by the hand-off when the business need originating in the organization is passed on to the IT unit as technical specifications (category 7). The respondents indicate that the activities

Table 1 Representation of the temporal dimension using the coded case categories

Categories forming stages of the temporal dimension (open coding)	Stages of the temporal dimension (axial coding)
Category 1: Decentralization culture resulting in business silos	Process formation
Category 2: Localized process design	
Category 3: Business units have the final say on the shape of the process	
Category 7: Business/IT hand-off	
Category 8: Process ownership located in the business	
Category 9: Low customer proximity of IT	
Category 4: Technology-focused IT competency profile	Process standardization
Category 6: Technical IT service portfolio	
Category 7: Business/IT hand-off	
Category 10: Business responsibility for process data and the first line of technical support	

before that point are related to the formation of the process, which includes the business rationale (category 1), factors shaping the way the process is performed (category 2, 3 and 9) and the responsibility for the performance of the activities constituting the process (category 8). Once the process is in place, standardization and streamlining of the process begin (Category 7). The process is broken into the data models and algorithms corresponding to the logic of the modules in the ERP system (Category 4) in order to specify the required developments (Category 6). Once the process is operational, the IT unit provides second-level IT support (category 10).

While the dimension is based on findings from the case, it is not new. Although the common definitions of business processes (Davenport 1993; Hammer and Champy 1993) account for a variety of tasks in organizations representing different degrees of formality and structure (Keen and Morton 1978), authors agree on the commonalities related to the existence of several stages in the evolution of every process. The heterogeneity of organizational tasks related to the dynamic nature of processes is formulated in the literature on business process lifecycles (Weske 2007; Zur Muehlen 2004). Process formation included in our temporal dimension corresponds to the first stage of a generic process lifecycle. It corresponds to the point at which a process starts being executed, regardless of whether it is shaped by a specialized organizational unit or an employee introducing a new work routine. At Delta, the end of this stage is marked by a business representative submitting functional requirements to the IT unit.

Process standardization in our model corresponds to the next step of a process lifecycle where companies subject processes to analysis, standardization and quality checking (Davenport 2005). They develop special competencies in order to analyze, discover, model, improve and redesign the work (Georgakopoulos and Tsalgatidou 1998; Snabe et al. 2008; Zur Muehlen 2004). The underlying purpose of these activities is to wrap up the processes in an IT solution in order to achieve time-, cost-, quality- and visibility-related benefits. Formalizing and modeling the processes is required in order to create associated application specifications and data models (Johannesson and Perjons 2001), whereas the design effort, apart from the business requirements, is influenced by the existing systems and process landscape (Strnadl 2006). Process standardization is therefore understood as the overall set of activities aiming at capturing, modeling, redesigning, formalizing, automating and integrating the processes with the IT and process landscape. At Delta, this stage ends when the IT unit finalizes the implementation of a solution.

4.3.2 Ownership dimension in a governance context

The *second dimension* concerns the ownership of either process formation or process standardization. Ownership is portrayed as having the authority to make or influence decisions, competencies to carry out tasks and expressing mutual expectations of business and IT as to who carries out what tasks. Given the categories identifies through open coding, the dimension consists of two levels: *central IT level* and *local business*. Table 2 provides an overview of the categories that represent the two stages of the ownership dimension.

The ownership dimension emerges from the respondents' statements, which reflect an "us and them" mentality. The IT staff refer to the local business as thinking in their own way, without feeling the need to co-ordinate the process efforts (category 1), which leads to the formation of processes specific to each business unit (category 2). Efforts to align process design to optimize the shared IT platform depend on the agreement of the local business, which has the final say on the matter (category 3). For that reason, the local business is responsible for owning those processes (category 8) and ensuring data quality and basic technical support (category 10). Central IT is mentioned in terms of the competency profile (category 4) resulting in the type of services delivered to the organization (category 6), governance model (category 5) and the definition of customers, which is different from that used by the rest of the organization

Table 2 Representation of the ownership dimension using the coded case categories

Categories forming levels of the ownership dimension (open coding)	Levels of the ownership dimension (axial coding)
Category 1: Decentralization culture resulting in business silos	Local business
Category 2: Localized process design	
Category 3: Business units have the final say on the shape of the process	
Category 8: Process ownership located in the business	
Category 10: Business responsibility for process data and the first line of technical support	
Category 4: Technology-focused IT competency profile	Central IT
Category 5: Centralized IT governance	
Category 6: Technical IT service portfolio	
Category 9: Low customer proximity of IT	

(category 9). Category 7 (business/IT hand-off) focuses on the temporal aspect and has not been used to derive the ownership dimension.

The second dimension, pertaining to the ownership of tasks in the organization, is recognized in the literature on IT governance and, more recently, process governance. In the literature on IT governance, a central and a local level are mentioned by Brown (1997), who discusses the distribution of IT-related activities. Ross et al. (2006) distinguish between various operating models based on whether the responsibilities for process and IT decisions are allocated centrally or locally. At the same time, Henderson and Venkatraman (1999) discuss the IT and business domains as two key areas that need to be integrated in order to achieve strategic alignment.

The area of process governance has received significantly less attention from academia than IT governance; however, several frameworks do exist in this area. Braganza and Lambert (2000) propose a framework for the governance of business processes that defines a multi-level stakeholder responsibility structure for process management tasks. Markus and Jacobson (2010) provide a detailed ontology of mechanisms and guidelines for how to connect stakeholder groups sharing accountabilities and authorities over the same processes. Process related authorities and accountabilities are also indirectly mentioned in the IT governance framework by Weill and Ross (2004), through IT architecture (process integration and standardization) and business application needs (rationale to purchase or develop applications). The decision rights for these areas fall within the IT or business domain, or a combination of the two.

4.4 Understanding the IT/business partnerships from a business process perspective

The aim of this study is to understand the IT/business partnership from a business process perspective. So far, we have inferred that the perspective can be qualified along two dimensions, representing the responsibilities for carrying out tasks related to two stages of the business process lifecycle. In this section, we utilize these dimensions and propose a way of visualizing the relationship between them by composing a simple table representation of the model. This step corresponds to the selective coding and is the final step in going from data to theory.

The model is shown in Table 3. It represents the IT/business partnership by assigning process lifecycle stages (temporal dimension) to either central IT or local business (ownership dimension) in an orthogonal fashion. The ownership is mapped in the row and column underlying the temporal dimension. The temporal dimension is represented by the first column and first row corresponding to the two groups of process lifecycle activities, process formation and process standardization. Each combination of the process lifecycle stage and ownership of that stage constitutes a different archetype of the IT/business relationship.

Table 3 The four IT archetypes built using the model

		Process standardization	
		Central IT	Local business
Process formation	Central IT	Full unification	Technology innovation
	Local business	Technology consulting	Technology support

In order to explore these archetypes, we use analytical generalization (Yin 2008) of the model. In this understanding, the validity of this extrapolation does not depend on the representativeness of the case in a statistical sense, but on the plausibility and cogency of the logical reasoning used in describing the results and drawing conclusions from them (Walsham 1993). Our logic is based on disaggregating and recombining the parameters making up the temporal and organizational dimension of the model, in order to explore our understanding of the four archetypes qualified along them. The archetypes are presented below.

Full unification This archetype is based on a strongly centralized governance structure, where the central IT unit has the full decision-making rights as to what the processes look like. They are exercised by designing the process and the systems at the same time. This allows for an alignment of the organizational processes with the workflow logic embedded in the system. It lessens the need to put the system into the enterprise (Davenport 1998) by amending the system in a way that allows for the independent process requirements.

At the same time, business units are deprived of the flexibility to differentiate between local market requirements. All change requests are handled centrally, and if a business unit views the current processes as inadequate, it is only able to pass the request to headquarters, where it is evaluated for applicability to the rest of the business.

The standardization of processes and systems in the full unification archetype applies to companies selling homogenous products and services across all of its markets. Competitive advantage stems from maximizing performance and reducing cost (Fisher 1997). Owing to the lengthy procedure of collecting, reviewing and rolling out new ideas on a global scale, innovation is not a primary goal. However, with the ability to mobilize resources across all the business units, the company can leapfrog ahead of its organically growing competitors.

Full unification is suitable for companies with high compliance requirements in terms of legal regulations and transparency. With a global process roll-out, compliance reviews

only need to take place once before the new design is approved. At the same time, a shared systems architecture allows for easier data-aggregation and retrieval, which improves transparency of process execution.

Examples of firms utilizing full unification include large retail chains, airlines and manufacturing companies. Zara, an apparel business, benefits from this archetype by being able to track its product sales almost in real time and rapidly adjust to market conditions. The centrally steered homogenous process, based on a shared tracking technology platform, allows for a quick cycle execution. It provides instant feedback to headquarters and allows rapid development of new product designs. With accelerated cycles, the company has been able to significantly outperform its competitors (Ferdows et al. 2004).

Another example of the full unification archetype is Dow Chemicals, a chemical manufacturing company. The enterprise operates using centrally developed and owned manufacturing, human resources (HR), order management, purchasing, customer service and other processes. They are supported and implemented by means of a corporate ERP platform used across all the units. Dow Chemicals maintains a single source of data, in the form of a corporate database, to provide one point of reference on the ongoing activities, increasing integration, transparency and standardization of operations across its subsidiaries (Ross et al. 2006).

Technology innovation The full unification archetype invariably suggests a centralized management environment. Economies of scale and operational homogeneity make this scenario best suited to companies selling commodity products and services. However, firms that are focused on innovative may find this archetype unsuitable. Instead, they might look for more flexibility in order to become market-responsive and utilize the technology resource as a driving force for transforming their operations.

The technology innovation scenario assumes the central IT unit's responsibility to screen for and develop new technology-driven solutions. The unit does not offer the technology per se, but rather focuses on the IT scope; that is, those specific information technologies that support current or could shape new business strategy initiatives for the firm (Henderson and Venkatraman 1999).

The technology innovation archetype is applied in companies who sell innovative products or services in diverse and unpredictable markets (Fisher 1997). Operational effectiveness in such environments is characterized by the ability quickly to recognize the success or failure and adapt through additional investment or resource reallocation (Haeckel 1999). The IT unit is a provider of new business solutions, while ensuring a consistent systems landscape is not a high priority. The local business can adopt the solutions when it finds them beneficial and implement or adapt them in a way that corresponds to its existing technology and process portfolio. Not having to force a rigid central systems platform makes it easier to introduce changes and increases the speed of process innovation.

An example of a company using the technology innovation archetype is Google. Its Google Labs invention exists in order to collect grass-roots initiatives from individual employees. By providing a central platform for a systematic gathering, evaluation, development and implementation of new ideas, Google's headquarters are a central provider and facilitator of new process development. Despite being an active part of the process formation stage, the ownership of the development and adjustment tasks is with the particular employees, who, aided by user feedback, scale and evolve the new services until they reach a market-mature form and become Google Labs graduates (Hamel 2006).

Technology consulting The technology innovation scenario suggests that technology is a leading source of process innovation in the firm. However, companies who are more focused on innovation from sources other than IT may find this solution less beneficial. Similar to the technology innovation archetype, those companies look for flexibility in designing processes, but at the same time they utilize a shared IT organizing logic to support their execution (Sambamurthy and Zmud 2000).

Companies who apply the technology consulting archetype work across diverse markets and product portfolios and utilize technology as an operational asset. The key focus in technology consulting is to deploy IT to attain cost benefits and at the same time ensure the required level of integration among the business units. IT units in the technology consulting archetype have some process orientation, but only to the extent that it concerns the technical aspects of the process. They are organized into technical staff and IT consultants, further divided along the enterprise system's functionalities corresponding to high-level business processes (Antonucci and Goeke 2011).

In technology consulting, the IT unit faces a range of choices related to influencing the business requests in order to make them more aligned with the shared platform. The choices can be qualified along what Henderson and Venkatraman (1999) call strategy-execution and service-level alignment; that is, the situation in which IT developments are fully subject to the process designs and the situation in which the systems logic is a decisive factor in process designs. Therefore, technology consulting is an archetype seeking to balance business flexibility and technology platform efficiency. Companies cope with this inherent conflict by establishing methods and organizational bodies in order to streamline decision-making across the technology and business domains and providing a shared

frame of architectural reference (Fonstad and Robertson 2006).

The conflict stemming from the divergence between process flexibility and technology integration is well illustrated by the case of BT plc, formerly known as British Telecom. During the late 1990s and the 2000s, the company found itself operating across a variety of diversified business units, which was the result of attempts to launch them as independent businesses. However, these plans were halted owing to the technology crisis in the early 2000s. In order to enhance integration, standardization, scalability and reliability of the systems platform across the semi-independent units, BT plc decided to implement a company-wide architecture. Because the corporate business units already had their own architectures, the central IT group and the newly established Architecture Realization Group faced significant clashes in several areas. Eventually, with the continuing support of senior management, the company introduced a set of mechanisms to ensure that each new project was compliant with the corporate architectural frame. The mechanisms included updated project models, empowerment of the IT and architecture groups and establishment of organizational bodies responsible for facilitating dialogue across horizontal and vertical organizational domains. As a result, BT plc was able to utilize the need for process change originating in the business to drive the implementation of a shared architecture (Fonstad and Robertson 2006).

Technology support In this archetype, the local level is responsible for all of the process lifecycle activities. The business units are responsible for process design and process implementation. The IT unit acts as a provider of IT services, such as software development, data standards, and hardware infrastructure, without an in-depth business insight. The developments can take place within a shared systems platform or within independent software applications used by the business.

Delegating design-related and systems-related process decisions to the local level, this archetype allows for a high degree of process flexibility. Each business unit can closely tie the utilized solutions to evolving customer and market needs. However, cost-wise, it is less efficient than the other archetypes because it means that every business unit develops its own architecture standard, maintains its own system and supports its own IT consultants to "translate" the business requirements into technical specifications submitted to the central IT unit. With many divergent systems and standards, businesses operating within this archetype are more likely to face challenges related to integrating and aggregating data to attain operational transparency.

Companies applying this archetype are diversified in terms of product portfolio, geographical markets and have little if any need to integrate operations. They share few customers and suppliers and they use common IT services to utilize economies of scale. Technology is not a strategic asset for them, but a cost required for executing the business strategy (Henderson and Venkatraman 1999).

An example of the technology support archetype is Carlson Companies. It is a network of enterprises operating in marketing, hospitality and travel business. With hotel and restaurant chains, travel agencies, a loyalty network and a marketing group, there are very few synergies to be realized in terms of customers, suppliers and business practices. However, even though Carlson Companies are run autonomously, they benefit from cost savings and synergies in IT and finance. The central service unit operates as an independent business. It is built on the assumption that the business units should share technical infrastructure services, but retain control over local business processes and IT applications. In spite of having seemingly little room to integrate, Carlson Companies won the 2004 International Productivity and Quality Council's award for best mature services organization (Ross et al. 2006).

4.5 Applying the archetypes at Delta

At the beginning of the case study section, we stated that Delta is implementing a new strategy focused on increasing its internal alignment. The IT unit is expected to play a major role in this implementation. For one thing, it will be responsible for the technical side of transforming the processes, including maintenance and development of the technology platform, which corresponds with process standardization. It will also have a mandate to ensure coordination and consistency in the way that the business units operate, which corresponds to process formation. With the desire to centralize process formation and process standardization, the archetype desired by Delta is *full unification*.

However, as we indicated in the case study, the beginning of the current engagement of Delta's IT unit in process transformation is marked by the preparation of IT specifications. Activities related to process formation fall within the business domain. The categories derived from the case indicate that the IT unit at Delta assumes an order-taking mentality and its authority and competencies do not correspond with the requirements to drive process transformation of the business. At the same time, the IT unit is well capable of serving the organization with tasks related to the process standardization effort by means of capturing processes to form a technical specification, modeling them in the system, formalizing their execution, automating them and integrating them into the IT landscape. The long-lasting experience, combined with a strong technical capability pool reinforced by the centralization of the IT function, have led to an accumulation of standardized and efficient ways of operating in delivering technical solutions to the

organization. The capabilities of employees built around the process modules of the ERP system support process transformations. The centralization of the function contributes to efficiency in handling the requests coming from the organization by minimizing the risks of surging service demand. The unit "owns" the global IT system and therefore handles requests relating to processes cutting across multiple software modules. With process formation currently belonging to the tasks of the local business domain and process standardization to the central IT domain, Delta uses the technology consulting archetype. Table 4 marks the current and desired archetypes of the IT/business relationship.

With the desired full unification archetype assuming a key role of IT in influencing process designs, the current positioning within the IT consulting archetype clearly does not live up to the management's ambition. This situation has two disadvantages from the IT unit's point of view: lack of strategic significance and the threat of being outsourced. The first disadvantage affects the entire company. In today's economy, removing an ingredient of process innovation as important as technology-driven innovation must have a negative impact on the overall operational innovativeness in the company. The second disadvantage stems from the fact that IT has detached from the business and supports the organization remotely, while operating on a "per request" basis. As the IT staff is co-located with the corporate HQ in a country where the cost of labor is comparatively high, this puts a competitive pressure on the IT unit to reposition itself in order to become a more valuable partner to the rest of the organization.

The move from technology consulting to full unification requires that Delta's IT unit becomes an active player in the process formation stage. For that reason, it needs to acquire new competencies corresponding to this process lifecycle stage. Constant screening of the technology market for new solutions will enable Delta to maintain a process edge by using the latest technology to improve efficiency of the existing processes and implement new ones (Henderson and Venkatraman 1993). However, before that is possible, Delta IT needs to be able to match the solutions with the requirements of the local business. The presence of IT unit representatives at the process formation stage needs to be made stronger by creating new IT-business linkages (Fonstad and Robertson 2006) that work in two ways: (1) passing the needs of the local business to central IT and (2) enforcing the unified solutions. In order to fulfill the strategic objective of harmonizing processes, Delta should develop a new governance model that would include the IT staff, ranging from chief information officer (CIO) to IT consultant, as active participants in gathering requirements and making decisions related to the direction of process transformation on the strategic and operational level (Weill and Ross 2004).

While the shift to full unification does not change the ownership of process standardization, it affects the way in which it is carried out. Since the IT unit is empowered to impose new process designs, the company can benefit more from the shared IT platform. Software developments are not only made according to the requests of the individual divisions, but also using the standardized "best-practices" embedded in the technology (Jacobs and Weston 2007). This novelty entails that systems-development at Delta should, apart from business requirements, consider technology potential as a source of design input.

Finally, the ambition of serving the business with new technology-driven processes requires deep process and change-management expertise. When deploying processes standardized across process units, the business is looking for "turn-key" delivery of a concerted system and process change (Robey et al. 2002). For that reason, IT needs to be able to deliver extended services including change management and BPM. Developing these skills requires an enhancement of the IT competence portfolio and organizational culture toward process thinking (Brown and Ross 2003).

5 Discussion

Although this paper has been geared toward addressing a managerial concern, it has sought to apply generally accepted interpretative methods of data collection and analysis (Klein and Myers 1999), underlying the constructs of the model. The model and its archetypes are inferred from a single case study and therefore are not generalizable in a statistical sense; however, they can provide interesting insights for the business and academic community. With this in mind, the paper is a step toward enhancing our understanding of why and how IT and business processes interact and, therefore, why and how they should be managed in a conjoint manner.

The temporal engagement dimension reveals the dynamic nature of the IT/business partnership. The recognition of the

Table 4 Positioning Delta within the four archetypes

		Process standardization	
		Central IT	Local business
Process formation	Central IT	Full unification Delta (desired)	Technology innovation
	Local business	Technology consulting Delta (current)	Technology support

significance of "early" and "late" involvement of IT in business planning (Fonstad and Robertson 2006; Luftman 2003) has here been expanded by understanding of the different outcomes to which the involvement can lead. As we demonstrate, the differences between full unification, technology innovation, technology consulting and technology support are substantial, not only to the IT unit, but also to the entire organization. By making conscious choices about participating in process formation or process standardization, IT executives obtain an important tool to deploy technology in a way that supports the business strategy.

Our view of the temporal dimension differs from the ones taking IT projects as points of reference (for example, Markus and Tanis (2000). This has important implications. In our argument, a change or formation of a business process is what leads to a business need, which in turn triggers the IT development process. In this sense, taking the business process formation as the point of analytical departure allows for a deeper insight into the rationale of the business need, rather than its manifestation. This approach leads to setting clear roles and responsibilities about how the business need is created, not just how it is handled. Engaging early allows for a better understanding and avoids subsequent implementation problems.

While this paper indicates that there are different ways of prioritizing business and technology factors by assigning process lifecycle stage ownership, it refrains from providing a single, best solution. In the past, claims were made that the IT unit should be responsible for business process design (Peppard et al. 2000), or, more recently, that a business process center of excellence should be responsible for process-driven systems design (Rosemann 2010). Our study attempts to reconcile these two schools of thought. On the one hand, it recognizes the mutual dependency and need for co-ordination between processes and systems and, on the other, it views responsibility for process and systems design as a variable. The contingency of the variable stems from its congruence with the desired business outcome of IT deployment.

Building on previous work, the paper contributes to information systems research in several additional ways. Our model offers a process-centric extension of the organizational paradigm of IT activities, which Sambamurthy and Zmud (2000) call an "IT organizing logic". Each of the four archetypes represents a different kind and degree of process orientation, while demonstrating how this factor determines the IT unit's strategic *raison d'etre*. Business processes become an integral part of IT operations, whether the competencies are insourced by the IT unit (as in the full unification, technology consulting and technology innovation archetypes), or outsourced to the business (as in the technology support archetype). Managing the IT unit's process competencies as an extension of technology focus is an organizational reflection of the view that the value of IT should be understood beyond technology assets and through its potential to develop and improve business operations (Smith and Fingar 2003).

By establishing a connection between the governance of business processes and IT, this paper indicates that the IT centralization/decentralization discussion is far from over. The level of centrality of a process-oriented IT unit is understood using the dynamic nature of processes throughout the lifecycle stages and the differences in the archetypes. As the centralization/decentralization decisions are made per process lifecycle stage, the choice is not whether the IT function as a whole should be central or not, but which activities it wants to centralize and where it allows the business to drive the development.

While we argue that enhancing process orientation within IT is a much desired development, the need to build process savvy IT units has been well articulated before (Brown and Ross 2003). In our study, the starting point for the transition is represented by the technology support archetype. By proposing the four archetypes, our paper shows that the transition can have several end-points. Given the differences in strategic outcomes the archetypes entail, choosing the right one is an important strategic consideration for IT managers.

6 Conclusions, limitations and research implications

In this paper, we set out to study IT/business partnerships from a business process perspective. In order to meet this objective, two dimensions of the phenomenon have been highlighted, constituting the intersection between IT management and BPM. They are (1) the ownership dimension, which defines the governance of tasks related to business process lifecycle stages and (2) the temporal dimension represented by the process lifecycle stages themselves. A combination of these two dimensions in a model allows for a conjoint understanding of IT management and BPM in organizational contexts. We extend the model to derive four distinct archetypes of IT/business partnerships. The archetypes can serve as managerial guidelines as to the scope and direction of transformation toward process centricity of IT units.

Although we view our study as a helpful step toward enhancing the understanding of IT/business partnerships, we see a number of limitations to it. Using descriptive modeling in a case context is beneficial for creating a common language to represent this complex phenomenon. However, this approach can lead to oversimplification and loss of richness of data. Therefore, our model is only as useful as its ability to simplify the reality while sufficiently reflecting the phenomenon. With this in mind, our study, as in every case study, is as strong as the analytical approach chosen. Because the model is built on an assumption that a group of tasks from the process lifecycle is assigned to a given level and consistently obeyed,

this might be considered a weakness of the study. A way to trim the model to the needs of the user is to modify its granularity. This can be done in three ways: (1) carry out the analysis for every organizational sub-unit; (2) carry out the analysis by breaking up the process lifecycle into more elements (for example, installing process modeling and software changes as separate steps); or (3) introducing more ownership levels (for example, a divisional level).

Another limitation to the study is that it uses an interview-based approach, grounding its findings in the statements of individuals. These findings are therefore compatible with the assumption that the understanding of IT/business partnerships is a social construct. Given this premise, we claim that our theory building offers but one way of understanding the phenomenon. While we believe this way to be new and potentially interesting in explaining important aspects of IT/business partnerships, it is by no means exhaustive or holistic.

Finally, although offering four possible archetypes representing the IT/business partnerships in business process terms, we do not answer the question of what mechanisms should be used to implement them. The archetypes provide a direction for the change, but not the means for it. The implementation effort, which we have not addressed in this study, is likely to determine whether the company can reach the objective intended with a particular archetype. Extending our research with a design objective, and evaluating the utility and quality of the archetypes given different ways of instantiating them through additional case studies, offers a potentially interesting future research opportunity.

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