Abstract

Alignment between business and information technology (IT) has been a top priority for academics and business managers over the past decades because it is believed to create competitive advantage for the organization. However, alignment is not an easy task. In this paper, we present a qualitative case study where three alignment models are used to examine what kinds of explanations they give about the success/failure of alignment. We show that functional, structural, and dynamic alignment models alone are insufficient to provide a profound understanding about alignment. Instead, the models complement one another. This knowledge leads us to propose a set of questions for analyzing business-IT alignment.

Keywords

Business-IT alignment, alignment models, SAM, case study

Introduction

Business-IT alignment has been a top concern of IT managers for almost 40 years (Luftman & Derksen, 2012), as it has been studied actively since the early 1980s (e.g., Chan & Reich, 2007; Chan et al., 1997; de Leede et al., 2002). It is argued that organizations successfully aligning their business and IT strategies will outperform those without such an alignment. Alignment also leads to a more strategic use of IT and increased performance (Chan et al., 2006; Delery & Doty, 1996).

Information systems (IS) literature has identified three forms of alignment: functional (e.g., Henderson & Venkatraman, 1993; Oh et al., 2007; Tallon et al., 2011), structural (e.g., Broadbent & Weill, 1993; Hodgkinson, 1996), and dynamic (e.g., Itami & Numagami, 1992; Sabherwal et al., 2001). Functional alignment focuses on how IT resources can enhance business capabilities. Structural alignment refers to the allocation of business and IT decision-making rights across the organization. Dynamic alignment discusses how today's strategic decisions affect decision-making options in the future (Reynolds & Yetton, 2013).

Despite the number of studies about business-IT alignment, minimal guidance on building and sustaining alignment has been proposed (Avison et al., 2004; Reynolds & Yetton, 2013). For example, it has not been discussed what kinds of explanations are provided by different alignment models and what we could learn from these. This issue motivates our qualitative case study comparing three alignment models and their explanations about a strategic change in IT and business domains in an organization. Our research problems are: 1) What kinds of explanations do different alignment models give about alignment, and via this comparison, 2) Could we enhance our understanding of IT alignment?

We use three business-IT alignment models independently as frameworks to determine what kinds of explanations they give about alignment. We apply Henderson & Venkatraman’s (1993) Strategic Alignment Model (SAM) as a functional alignment model, Broadbent & Weill’s (1993) study as a structural alignment model, and Sabherwal et al’s (2001) study as a dynamic alignment model, as these have been widely used in the literature. We first analyze our case through the models and examine their explanations. Then we compare these explanations and suggest amendments to each model and a set of questions as a checklist for managers.
Related Research

Definitions of business-IT alignment vary; alignment is perceived as the degree of fit and integration among business strategy, IT strategy, business structure, and IT infrastructure (Henderson & Venkatraman, 1993). Reich and Benbasat (1996) regard alignment as a degree to which business strategy goals and plans are shared and supported by the IT strategy. McKeen and Smith (2003) argue that alignment exists when the organization’s goals and activities and the IT that supports them are in harmony. For Luftman and Brier (1999), alignment means that the organization is applying appropriate IT in a given situation, consistent with the business strategy, goals, and needs. Jarvenpaa and Ives (1993) suggest that alignment should be examined as “an emergent process.” Typically, strategic business-IT alignment requires a planned and purposeful management process (Broadbent & Weill, 1993), and IT is managed so that it mirrors the business management (Sauer & Yetton, 1997).

As alignment is a dynamic process rather than just an occurrence, it is often conceptualized through different frameworks and models. For example, the SAM (Henderson & Venkatraman, 1993) can be used concurrently at multiple points in time (Burn, 1993, 1997). This underlines a path dependency between the events; decisions made today affect tomorrow’s decision-making options (Dosi et al., 2000; Itami & Numagami, 1992). In this paper, business-IT alignment is viewed as the degree of fit and integration in business and IT strategies, and in business structure and IT infrastructure. We acknowledge that alignment, which is dynamic in nature, requires planned and purposeful management practices and policies. To conceptualize different alignment perspectives, we utilize Reynolds and Yetton’s (2013) classification into functional, structural, and dynamic types.

**Functional alignment** focuses on IT’s role as an enabler and supporter of business strategy and a source of competitive advantage, and it suggests how alignment can be sustained. Functional alignment models suggest that IT creates value by building IT capabilities that complement business capabilities (Barua et al., 1996, 1998). Competitive advantage is gained from the capability to constantly utilize technology better than the competitors.

The SAM (Henderson & Venkatraman, 1993) is a widely used model of business-IT alignment (Chan et al., 2007). It is built on four interrelated domains: business strategy, IT strategy, organizational structure and processes, and IT infrastructure and processes. Here the alignment between IT strategy and IT infrastructure and processes is equally important as the alignment between business strategy and business structure and processes. Strategic alignment is considered dynamic and a process of continuous adaptation and change. It is argued that poor business-IT alignment is a reason for organizations’ failure to realize the value of IT investments (Henderson & Venkatraman, 1993).

The SAM identifies two different forms of functional integration (strategic integration between business strategy and IT strategy, and operational integration between organizational structure and processes and IT infrastructure and processes) and strategic fit (between business strategy and organizational structure and processes, and IT strategy and IT infrastructure and processes). These form four alignment perspectives (Henderson & Venkatraman, 1999):

- *strategy execution alignment perspective*, where business strategy is a driver of organizational design and IT infrastructure;
- *technology transformation alignment perspective*, where business strategy is implemented through an appropriate IT strategy and by articulating the requirements of IT infrastructure;
- *competitive potential alignment perspective*, where emerging IT capabilities have an impact on business strategy and supporting organizational infrastructure; and
- *service level alignment perspective*, which focuses on improving IT service in an organization.

The SAM suggests that the management should decide the proper alignment and balance within these four alignment perspectives to give the best support to organizational goals (Henderson & Venkatraman, 1999).

**Structural alignment** concentrates on the relationship between the organization-wide strategy and business unit strategies and how they create value (e.g., Broadbent & Weill, 1993; Hodgkinson, 1996). Here, Broadbent and Weill’s (1993) alignment model is used as a framework for structural alignment. The model is built on the same four domains as those of the SAM. However, it is argued that competitive advantage is gained through superior organizational policies and practices. Nonalignment is viewed as a
natural state of an organization, and strategic alignment is considered temporal (Broadbent & Weill, 1993).

Broadbent and Weill (1993) identify 15 propositions as sources of competitive advantage—but only if they are consistent and superior to those of the competitors. The propositions can be grouped into four domains: nature of the strategy-formation process, organizational structure and accountabilities, IS responsibilities and policies, and technology strategy. The strategy-formation process emphasizes employees’ involvement and management experience in the organization-wide, strategy-formation process; common understanding of organizational goals; a well-planned, strategy-formation process; the consistency and clarity of strategic orientation; and the top management’s view of the IT strategy. The organizational structure and accountabilities complement the organizational strategy and decision-making processes and emphasize responsibilities in strategic orientation. The IS responsibilities underline the management’s responsibility in IT-based development, extensive interactions between business and IT staff, and improving the business managers’ understanding of IT. Finally, technology strategy suggests that appropriate technology architecture in terms of IT products and services is essential in gaining competitive advantage. Broadbent and Weill (1993) argue that these domains should be addressed in this order to maximize the alignment between IT and business. Planned and purposeful management processes are essential (Broadbent & Weill, 1993).

**Dynamic alignment** creates value by enabling organizations to be more flexible when confronted responding to environmental changes (Reynolds & Yetton, 2013). Here, Sabherwal et al. (2001) punctuated equilibrium model (see also Gersick, 1991) is adapted as a framework for dynamic alignment.

The dynamic alignment model also adapts SAM domains. However, Sabherwal et al. (2001) strategic information systems management profile (SISMP) approaches business strategy by using the typology of Defenders (in a mechanistic and centralized business structure), Analyzers (semi-structured and hybrid), and Prospectors (organic and decentralized) (cf. Brown & Eisenhardt, 1997; Brown & Magill, 1998; Miles et al., 1978). The IS structure can be centralized (corporate or central unit), decentralized (business unit or department), or shared among these groups (Brown & Magill, 1994; Camillus & Lederer, 1985). Four types of IS strategies are observed: Nonstrategic; Low-cost; Differentiation, growth, innovation, or alliance; or a combination of the last two types. Sabherwal et al. (2001) state that alignment exists in the last three types. Six types of alignment are recognized: business alignment (between business strategy and structure), strategic alignment (between business and IT strategy), structural alignment (between business and IS structure), IT alignment (between IT structure and strategy), and two cross-dimensional alignments between business structure and IT strategy and between business strategy and IT structure.

The SISMP considers changes as evolutionary, for example, when the organization shifts from Defender to Analyzer. The change itself evolves gradually, while the organization’s deep structure undergoes minor changes only. Gradual evolutionary changes are punctuated by sudden revolutionary changes. During revolutionary changes, where three or more SISMP domains are changed (Van de Ven & Poole, 1995), the organization’s deep structures are transformed completely. Revolutionary changes are triggered by environmental shifts, sustained low performance, influential outsiders, new leadership, or perception transformation (Sabherwal et al., 2001). Although a degree of alignment can be achieved, business environment changes call for an organizational response. Hence, long stable periods indicate higher alignment (Sabherwal et al., 2001).

**Research Methods**

An organization with ongoing changes in its IT and business domains is examined here as a qualitative case study (Myers & Avison, 1997). The case organization (later, the organization) was renewing its organization-wide, enterprise resource planning (ERP) system and implementing a strategic decision to extend its operations to new business areas—at the same time.

The organization is a global service provider in the retail business, with over 1,000 employees. The turnover was over 300 M€ in 2013. The organization has operations in 27 countries, with its headquarters in Finland. Its operations are divided into three primary areas (consumer, business-to-business, and wholesale) and supporting functions (human resources, finance, logistics, IT, and marketing). Its over 1,200 sales outlets mainly operate on the franchising/partnership principle.

The organization is renewing its ERP system with a customized solution. The organization and a Finnish vendor (later, the vendor) have 15 years of joint history, as the vendor also provided the organization’s
earlier ERP system. It was thus easy to select the vendor as the new system provider. The vendor’s headquarters and operations are also located in Finland although it has offshored some development work.

The ERP renewal project (later, the ERP project) was initiated in 2008, but its development was postponed until 2010. The initial goals were twofold; the old system did not support the organization’s critical business processes, and the vendor wanted to upgrade its software platform. The vendor also intended to commercialize the system as a product in general markets. When fully implemented, the modular ERP system will cover over 90% of the organization’s business operations. The parts that the organization perceives as sources of competitive advantage were developed and sold exclusively to it.

The ERP project had three distinct phases: planning and definition, development and piloting, and rollout. During each phase, the assemblage of stakeholders and methods varied. At first, business representatives, IT management, and the vendor’s business personnel were active; later, the work was mainly performed at the operative level between the organization’s IT department and the vendor’s technical personnel. By the time of the interviews, some parts of the sales outlet modules were in pilot use in four sales outlets. However, the ERP project was facing severe time and resource pressures and struggling with challenges in overall systems development and testing. Other functions of the ERP system development were still to be planned.

Sixteen semi-structured, theme interviews were held in the spring of 2013. The interviewees (see Table 1) were selected by using the snowball technique; former interviewees referred subsequent ones (Myers & Newman, 2007). When new interviewees were not suggested, supplementary interviews were considered insignificant. The first interview session had two interviewees, while the rest had one interviewee each. All interviews followed the same template and themes: identification of stakeholders, personal experiences, and project experiences.

<table>
<thead>
<tr>
<th>Title</th>
<th>Organization</th>
<th>Project role</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate CIO</td>
<td>Organization</td>
<td>Governance</td>
<td>Corporate-level IT</td>
</tr>
<tr>
<td>ICT manager</td>
<td>Organization</td>
<td>Project manager</td>
<td>IT Department</td>
</tr>
<tr>
<td>IT support</td>
<td>Organization</td>
<td>Mediator between the organization and the vendor</td>
<td>IT Department</td>
</tr>
<tr>
<td>Operative chief</td>
<td>Organization</td>
<td>Customer view</td>
<td>Business Management</td>
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<tr>
<td>Concept manager</td>
<td>Organization</td>
<td>Business processes</td>
<td>Business Management</td>
</tr>
<tr>
<td>Controller</td>
<td>Organization</td>
<td>Financial issues and accounting</td>
<td>Business Management</td>
</tr>
<tr>
<td>CEO</td>
<td>Vendor</td>
<td>Overall</td>
<td>Business Management</td>
</tr>
<tr>
<td>System analyst</td>
<td>Organization</td>
<td>Project manager</td>
<td>IT Department</td>
</tr>
<tr>
<td>Technical support</td>
<td>Organization</td>
<td>Technical performance</td>
<td>IT Department</td>
</tr>
<tr>
<td>Customer interface</td>
<td>Vendor</td>
<td>Mediator between vendor and customer</td>
<td>Customer Interface</td>
</tr>
<tr>
<td>Lead designer</td>
<td>Vendor</td>
<td>Designer (between organization and vendor’s offshore development team)</td>
<td>Design</td>
</tr>
<tr>
<td>Product development leader</td>
<td>Vendor</td>
<td>Overall product supervisor</td>
<td>Management</td>
</tr>
<tr>
<td>Office manager</td>
<td>Organization</td>
<td>Business processes</td>
<td>Sales Outlet</td>
</tr>
<tr>
<td>User</td>
<td>Organization</td>
<td>Business processes</td>
<td>Sales Outlet</td>
</tr>
<tr>
<td>CEO</td>
<td>Organization</td>
<td>Governance</td>
<td>Business Management</td>
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<tr>
<td>Business manager</td>
<td>Organization</td>
<td>Business Processes</td>
<td>Business Management</td>
</tr>
</tbody>
</table>

Table 1. Interviewees and their backgrounds.
The face-to-face interviews, lasting from 11 to 98 minutes and averaging 49 minutes, were audio-recorded and transcribed. Public materials were also used to create a more comprehensive understanding of the organizations and their businesses.

The data analysis followed an interpretive research approach (Klein & Myers, 1999). It was started by reading the transcripts, identifying relevant comments and statements, and arranging them thematically.
for each interviewee. Then the comments were analyzed three times, from the viewpoint of each business-IT alignment model. This was done by first identifying the key elements and dimensions in each model, and then going through the data and detecting all instances. This process resulted in an understanding of how the models and their different dimensions appeared in the case.

**Findings**

This section presents the findings on how each business-IT alignment model appeared in the case.

**Functional alignment model (SAM)**

The organization seemed to have a traditional, business development model, acknowledged by top and middle management. Development initiatives originated from the changes in the business strategy and were implemented by developing the organizational structures, operating models, and/or business processes. The organization’s business manager summarized this process: "First, we renewed our strategy completely. Then we went through all organizational structures, operating models, job descriptions, [and] meeting practices. We aligned all these practices in all of our offices. After this, we continued by [developing] the processes. The thing that is missing is getting all employees involved and supporting this development. I think that's the hardest thing." The IT systems and infrastructure were adjusted to support the business goals and renewed organizational structures and processes. It was acknowledged that the business drove the systems development: "[The ERP] system cannot drive our business. If it does, we are in the wrong track" (the organization’s business manager).

The reason for renewing the ERP system was confirmed. The organization needed technology to support its strategic decision to expand its businesses to new business areas. The old ERP system neither provided adequate support nor could it be further developed because of technical limitations. Competitive advantage was desired through new features, more agile technology, and system advancement. The organization’s CIO said, "The main point with this ERP project and with all of our services is to [gain] advantage compared to our competitors," yet according to the organization’s ICT manager, "this kind of ERP system is never ready because it is always developed from the business needs." Consequently, the management regarded IT development as a continuous process and a response to changes emerging from the business environment. This indicated that the organization followed the strategy execution alignment perspective, where the articulated business strategy worked as a driver for organizational design and IT infrastructure development (Henderson & Venkatraman, 1999).

While the organization’s business development framework was acknowledged by the top and middle management, strategic decisions and operations were not well executed although correspondingly stated in the organization’s formal business development model and suggested by the strategy execution alignment perspective. The decision to expand the business to new business areas was made first, but in practice, the ERP system development preceded the business process development. The vendor interviews showed that the original idea to renew the ERP system came from the vendor, not from the organization. The vendor had made a strategic decision to renew its product platform; thus, it proposed a jointly developed ERP system. As the timing fit well with the organization’s business plans, a cooperative endeavor was started. The interviews with the organization’s representatives revealed that it actually started the business process development only after a few years of ongoing technical development. The organization’s business manager scrutinized its business and IT development: “Somehow, this ERP project came first, time-wise, compared to [the business] process development." It seemed that while the organization’s management had an understanding of strategy planning and execution framework, the executives did not behave accordingly.

Examining the case from the functional alignment perspective showed that the organization had the key features of strategy execution alignment but lacked the implementation of planned structures and processes.

**Structural alignment model**

The organization, its employees, and the management had a common understanding of their high-level strategy. Everyone acknowledged the organization’s strategic, long-term decision to expand the operations to new business areas. They also had a shared understanding that the new ERP system would create competitive advantage. Nonetheless, the middle management and the staff had limited means to partici-
participate in the strategy-formation process. There were workshops for the management level and commenting tools in the Intranet for the rest of the employees. However, these resources were insufficient although a reward system for the development of ideas was introduced. This was even an assigned duty: "everyone is obligated to create 15 new ideas" (Organization's IT representative).

Although high-level strategy was commonly acknowledged and personnel somehow participated in the strategy process, the structural alignment model points out the organization’s severe deficits in practices and policies. For example, in the beginning of the project, the business management was actively involved in specifying the requirements. Its goals were taken into account: “We had our product managers, business area managers, and IT representatives involved in the project at the specification phase” (the organization’s ERP project manager). However, the business managers were rarely involved after these sessions. He continued, “The specification group had been very passive since the requirements specification phase. Even if you ask [for] business managers’ comments on changes in the specification, you don’t get any because they don’t bother to read it.”

Although the ERP project manager “participated in the organization’s steering group, where [he] kept the management informed about the project during [the] specification phase,” the management had not reviewed the ERP project since then. Consequently, the executive management reviews of the IT strategy were incomplete, as IS responsibilities and policies were poorly implemented; internal accountabilities regarding the ERP project were not explicitly defined nor had the top management exercised real ownership over the ERP project. The organization’s ERP project manager put it mildly, “The [ERP] project had a steering group, but it [hadn’t] been very active.” The business and IT managers collaborated in the beginning, but interaction had since diminished. In a similar vein, accountabilities in the project work were not clear. Informal communication and interaction between the parties was the norm, and very few, formal communication practices were explicitly defined.

The organization had started to adjust its structure and processes for a better match with its business expansion decisions. However, as discussed earlier, a strategic decision to move to new business areas was first made, then the ERP project was launched as the vendor’s initiative, and only after this did the renewal of business processes begin. Nonetheless, some interviewees argued that the ERP system, specified before the business process renewal, would not compromise the development of new business processes. “This ERP will not change our processes; our processes will [have an] effect on [the] ERP” (the organization’s business manager).

The structural alignment perspective reveals the organization’s lack of organizational practices and policies, essential for successful alignment. Although the practices and policies were set to a certain degree, they were nowhere near the extent of how the structural alignment model comprehends them.

**Dynamic alignment model**

The organization’s business strategy had the typical features of a Defender. Historically, the organization had expanded its business incrementally by purchasing smaller firms and then implementing IT to support the business. The data suggested that the organization’s business and IT development were focusing on developing its services, not buying smaller firms. The traditional model of first planning the processes and implementing them in an ERP system was nevertheless abandoned.

The data showed no strong references regarding the business structure. The IS structure was centralized. Decision making, project management, and system specifications were also centrally managed from Finland.

The organization emphasized efficiency and cost management; one main reason for selecting the vendor was the expenses involved. As the organization and the vendor had cooperatively developed dedicated features in the old ERP system, it was assumed that the total costs would be lowest with the vendor. The organization’s business management representative stated, “For example, SAP and Oracle could have been options. We thought that those would be too expensive. We also thought that with the vendor, further development of [the] ERP system would be cheaper.” The selection criteria included the price of ERP development and implementation, low costs of future system development, and lower starting and specification costs. Nevertheless, the organization invested in the vendor’s product development.

The organization strived to gain competitive advantage from the new ERP system and protected the features by contractual exclusivity. Regarding growth, the organization had a strategic goal to extend its operations into new markets. It also showed some innovative solutions in developing the new ERP system;
for example, the requirements specification began from a “blank canvas” where all ideas, no matter how grand, were accepted. Consequently, the organization’s IS strategy combined low-cost strategy and differentiation, growth, innovation, and alliances.

Viewing the data from the selected, dynamic alignment perspective indicates that the organization was undergoing an evolutionary change. No categorical changes had been made in the strategic IS management profile. Instead, minor modifications were implemented in the business strategy (expanding operations to new business areas), IS strategy (developing a new ERP system), and business structure (developing business processes). However, the organization needed a revolutionary change to succeed in its IT investment and business goals. Consequently, the organization’s management was not executing appropriate activities for success.

**Discussion**

Next, we summarize our findings and analyze what explanations the different alignment models provide for the organization’s business-IT alignment. All of the three alignment models emphasize different topics as building blocks for IT alignment. Table 2 (next page) summarizes our findings.

The *functional alignment model perspective* points out that formally, the organization had a traditional and acknowledged business development model driven by its business strategy. Theoretically, the organization followed a strategy execution alignment perspective (cf. Henderson & Venkatraman, 1999). However, the data illustrates the organization’s failure in strategy implementation. Its business development model and strategy execution alignment were not well adjusted. Thus, the factors affecting the organization’s business-IT alignment were its business development model (one of four from Henderson & Venkatraman, 1999), alignment perspective, and execution and implementation. If the existence of the alignment is analyzed through our alignment definition, the functional alignment model explains that the evident misalignment is a result of the degree of integration between IT and business domains. To be more precise, the reason for nonalignment is the poor implementation of the business development and strategy execution alignment models.

From the *structural alignment model perspective*, the organization had some features of the strategy-formation process structure. However, it had severe flaws in organizational structure and processes and IS responsibilities and policies although it had started to develop its technology architecture and IT to match the business needs better. Consequently, from the structural alignment model perspective, the main factors affecting the organization’s IT alignment were incomplete strategy-formation processes and insufficient management practices and responsibilities in its IT investment. These drawbacks had impacts on the organization’s ability to implement its strategy at the operational level. Again, analyzing alignment through its definition reveals the reason for misalignment as incompletely planned and executed management processes. To be more precise, the reasons for nonalignment are inadequate practices and policies in the strategy-formation process and executive management reviews of its IT strategy. Despite the organization’s shared understanding of its strategy and the employees’ participation in the strategy-formation process, the organization had inefficient practices, structures, and policies to implement strategic decisions in its operations. Moreover, management reviews of its IT strategy and IT investments were applied only at the early phases of IT development.
<table>
<thead>
<tr>
<th>FUNCTIONAL</th>
<th>STRUCTURAL</th>
<th>DYNAMIC</th>
</tr>
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<tbody>
<tr>
<td><strong>Business development model</strong></td>
<td><strong>Nature of strategy-formation process</strong></td>
<td><strong>Business strategy</strong></td>
</tr>
<tr>
<td>Traditional, acknowledged, business strategy-driven model.</td>
<td>Top and middle management participation in strategy-formation process, rewarding system and staff responsibility for idea creation.</td>
<td>Strategic type of organization is Defender.</td>
</tr>
<tr>
<td>Business development model lacks implementation.</td>
<td>Common understanding of high-level strategy and goals.</td>
<td>Organization grows incrementally.</td>
</tr>
<tr>
<td></td>
<td>Long-term strategic plan to extend business operations to new business areas.</td>
<td>Strong emphasis on cost management and efficiency.</td>
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<td></td>
<td>Lacking in organization’s practices and policies.</td>
<td>Development is focused on current services.</td>
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<td></td>
<td></td>
<td>Long tenures.</td>
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<td></td>
<td></td>
<td>Planning precedes implementation.</td>
</tr>
<tr>
<td><strong>Alignment perspective</strong></td>
<td><strong>Organizational structure and accountabilities</strong></td>
<td><strong>Business structure</strong></td>
</tr>
<tr>
<td>Strategy execution alignment perspective.</td>
<td>Organization has started to modify its structure to better complement its strategy.</td>
<td>Some hints of mechanistic and centralized business structure.</td>
</tr>
<tr>
<td>Strategy implementation problems.</td>
<td>Implementation done upside down—first, ERP system, then business processes.</td>
<td>Centralized decision making in business and IT.</td>
</tr>
<tr>
<td><strong>Dynamic nature</strong></td>
<td><strong>Information system’s responsibilities and policies</strong></td>
<td><strong>IS structure</strong></td>
</tr>
<tr>
<td>ERP system development is viewed as continuous process of adaptation to changing business demands.</td>
<td>Management shows active ownership and responsibility only at the start of the ERP project.</td>
<td>Centralized.</td>
</tr>
<tr>
<td></td>
<td>Accountabilities in ERP project are unclear.</td>
<td></td>
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<tr>
<td></td>
<td>Interaction between IT and business staff only at the start of the ERP project.</td>
<td></td>
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<tr>
<td></td>
<td>Lacks executive management’s review of IT</td>
<td></td>
</tr>
<tr>
<td><strong>Source of competitive advantage</strong></td>
<td><strong>Technology strategy</strong></td>
<td><strong>IS strategy</strong></td>
</tr>
<tr>
<td>Organization strives to gain competitive advantage via ERP system, which covers 90% of its IT systems.</td>
<td>Organization has started to develop appropriate technology architecture and IT to support its business goals.</td>
<td>Combination of low-cost and differentiation, growth, innovation, and alliances.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Type of change</strong></td>
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<td></td>
<td></td>
<td>Evolutionary changes only.</td>
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</table>

Table 2: Different topics when examined from different alignment perspectives.
Sabherwal et al.’s (2001) dynamic alignment model perspective argues for organizations’ strong preference for the Defender business strategy. The data gives some indications about the organization’s mechanistic, centralized business and IT structures and centralized decision making. The organization’s IT strategy combined low-cost and differentiation, growth, innovation, and alliance strategies. It was undergoing an evolutionary change where no categorical changes had been made despite the organization’s clear need for a revolutionary change (cf. Hammer & Champy, 1993). The organization tried to expand its business operations, renew its business processes and structures, and develop and implement a new, firm-wide ERP system. The dynamic alignment model perspective illustrates that the factors affecting alignment are the scale of upcoming change, the current state of an organization’s business strategy, IT strategy, business structure, and IS structure, and whether these are in place for the change. The definition of alignment argues that the reasons for the misalignment could be found in the organization’s strategy and structure, which did not support its strategic changes and IT investments.

Evidently, all alignment perspectives point out different topics on (mis-)alignment and suggest various factors, both at the organizational and single IT-investment levels. As such, our study parallels previous studies in the sense that individual alignment models provide only a limited understanding of the topic (Reynolds & Tetton, 2013). Instead, when IT alignment is approached from several perspectives, such as functional, structural, and dynamic, their aggregate provides a more comprehensive understanding of alignment and its problems. Nonetheless, this notion is not novel. Thus, in the next section, we discuss how this complementary approach can be utilized in analyzing and improving business-IT alignment.

**Toward a more comprehensive understanding of alignment**

The functional alignment perspective takes our attention about business-IT alignment to the organizational level, focusing on the business development structure and four alignment models. Although the business development structure was defined, and alignment practices followed theoretical alignment models, alignment was poor because of implementation problems. We thus suggest that the functional alignment model needs to be complemented with notions about implementation.

The structural alignment model focuses on organizational practices and policies. Our study supports earlier ideas that organizations should concentrate on comprehensive planning and management of appropriate organizational practices. We thus suggest extending the structural alignment model to organizational practices and policies in managing individual IT investments.

The dynamic alignment model emphasizes different typologies about the organization, business strategy, IS strategy, and IS structure, as well as the type of change. Even though all typologies and the type of change are recognizable in the case study, they do not correspond with one another. The dynamic alignment model should thus be complemented with the notions about identifying the scale and magnitude of the change, along with the readiness of the organization’s strategies and structures (both IT and business domains) for this change to succeed and achieve better business-IT alignment.

Based on these observations, we propose a list of questions for the management when assessing the level of alignment in the organization. These questions or amendments complement the alignment models and help form a more comprehensive, practical understanding of IT alignment in general.

**Amendment 1: Functional alignment model.** Appropriate relationships among the business strategy, business structure, IT strategy, and IT structure should be acknowledged, managed, and monitored accordingly, and the organization should ensure that these are applied at the level of single IT investments. Consequently, the management should ask the questions presented in Table 3.
**Question** | **Reference to the case organization**
---|---
What is the relationship between IT and business in general in our organization? | IT is perceived as a supportive function for business. Decision making and management of IT is based on changing business demands.

Is this relationship planned, organized, and managed in a way that supports our strategic goals? | In the organization’s business development model, the business strategy guides the design of the organizational structure and processes, IT strategy, and business implementation. The organization has management-level participation in business strategy creation, and the staff has the responsibility to create new ideas.

Is this relationship visible and acknowledged in our organization? | The business development model is known in the top and middle management.

Do we execute the improvements in this relationship as planned at the organizational level? | Execution was not done as planned. The organization decided and started to extend its business operations to new market areas. Next, it began to create an IT system (ERP) to support the current business. Lastly, it initiated the development of the business model.

Do we have the necessary management and monitoring of the implementation? | The top and middle management planned the organization’s business strategy and later started to renew business processes. In the ERP development project, the organization’s management participated in the specifications, and the project had a steering group. After the implementation started, the specification and steering groups had not been actively involved.

Do we have the appropriate program and project management that complements our goals? | The ERP project has a designated project manager and a few employees from the organization’s IT Department. The project manager handles the position’s functions in addition to his or her normal work duties. There is no deputy project manager. A designated manager in every country is responsible for participation in the project. The project had an active steering group only at the specification phase. Communication within and between the organization and the vendor is informal.

| Table 3. Checklist for managers: functional alignment model. |

**Amendment 2: Structural alignment model.** The strategy-formation process should be acknowledged, managed, and monitored appropriately. The organizational structure and accountabilities should be defined and operationalized at both the organizational and single IT-investment levels. The IS policies and responsibilities should be defined, managed, and monitored. The management executives should ask themselves the questions listed in Table 4.

**Amendment 3: Dynamic alignment model.** Depending on the magnitude of the change in the organization’s business and/or IT domain, the organization must consider whether its strategies and structures are appropriate to successfully implement the change, at both the organizational and single IT-investment levels. The management executives should ask themselves the questions included in Table 5.
<table>
<thead>
<tr>
<th>Question</th>
<th>Reference to research findings in case organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do we have appropriate practices in our strategy-formation process?</td>
<td>The management participates in business strategy creation, and the staff has the responsibility to provide new ideas. The organization’s strategy has been clearly articulated—that employees at all levels acknowledge the organization’s decision to move to new market areas and that the ERP project will bring competitive advantage.</td>
</tr>
<tr>
<td>Do we have the appropriate organizational structure and accountabilities that address both business and IT management?</td>
<td>The organizational structure is centralized in both IT and business. The countries have their own business managers. Decisions in the IT domain follow the decision making in the business domain.</td>
</tr>
<tr>
<td>Have we considered how our IT investments are managed, and do these practices support our strategic goals?</td>
<td>The ERP project was initiated by the business domain. The development of IT investments was managed by the IT domain. The business managers participated in IT development because of IT needs. The ERP project had a broad steering group, but it had not been active after the specification phase. Requirement specifications were written in cooperation with IT and business, so business needs were defined. Since then, no formal practices to modify the specifications or reconsider the business needs had been set.</td>
</tr>
<tr>
<td>Do we have clear responsibilities, roles, and structures to support our IT investment planning and implementation?</td>
<td>The project manager had overall responsibility for the IT investment through the project. The organization’s CEO handled contractual and monetary issues. The specifications group had a designated task to create specifications for the new ERP system. The organization’s project staff worked informally, without clear roles, responsibilities, and a project structure to support operative actions.</td>
</tr>
</tbody>
</table>

Table 4. Checklist for managers: structural alignment model.

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>What is the business strategy in terms of organizational type, organizational structure, IT strategy, and IT structure?</td>
<td>The organizational type is defender. The business structure shows some hints of centralized management. The IT strategy combines low-cost and differentiation, growth, innovation, and alliance strategies. The IT structure is centralized.</td>
</tr>
<tr>
<td>Do we understand the nature of the upcoming change?</td>
<td>The organization is aiming to renew its business strategy, organizational processes, and 90% of IT.</td>
</tr>
<tr>
<td>Does our current organization type and structure support the upcoming change?</td>
<td>Defenders are focused on keeping the current clientele and market share in the current areas and how to operate efficiently. Maintaining control over the organization to guarantee efficiency is essential (Miles et al., 1978). The organization aims to extend its operations to new market areas, as well as develop and implement the new ERP system and business processes simultaneously.</td>
</tr>
<tr>
<td>Does our existing IT strategy and structure support the change?</td>
<td>Centralized IT management helps keep the IT development coherent but misses the different requirements in various countries. The organization develops the system for global use based on Finnish requirements and legislation. The ERP system is provided from a private cloud on the Internet, which exposes the ERP system usage to varying connectivity rates and speeds.</td>
</tr>
</tbody>
</table>

Table 5. Checklist for managers: dynamic alignment model.
When considered together, these amendments help managers examine and evaluate their organization as a whole and in its parts or individual IT investments from the viewpoint of business-IT alignment. These questions thus provide concrete examples of how to address alignment in practice and more importantly, identify possible areas for improvement. The examples illustrate how different issues may appear in practice.

The study also provides an interesting notion about functional alignment. The SAM states that no single IT system can create sustained competitive advantage, no matter how state-of-the-art it might be. Instead, sustainable competitive advantage can be achieved through constant utilization of IT functionality (Henderson & Venkatraman, 1999). The organization’s new ERP system will cover approximately 90% of its IT support. The remaining 10% mainly consists of reporting. This leaves an open question of whether the organization can, according to the SAM, gain competitive advantage through the new ERP system as it is considered a strategic asset and as development is deemed a continuous process, driven by business needs and protected by contractual exclusivity. The organization also benchmarked the state-of-the-art ERP solutions, picking up the best features on the market. This gave the organization an understanding of what is currently available for its competitors. The requirement specifications were written with this knowledge. All these aimed at identifying and specifying the new features bringing competitive advantage.

Despite all these activities, the organization seems doomed. The ERP renewal will most likely fail, unless corrective actions are taken to improve business-IT alignment. Consequently, there is a significant danger of the organization becoming an unfortunate example of failed ERP implementation projects (see others in Pekkola et al., 2013). However, our analysis does not reveal the root causes of the failure. Is the reason the alignment problems discussed earlier, or is it just impossible to gain competitive advantage through a gigantic ERP system?

This research is based on a single, qualitative case study. This means that other potential features and factors could have been unnoticed. Consequently, additional data from different organizations, possibly collected and analyzed with a variety of methods and perhaps with other alignment models, would improve the results. Nevertheless, the findings still provide a basis for a model enabling organizations to evaluate the scale of alignment and potential success of their IT investments.

**Conclusion**

This paper has attempted to advance our knowledge of business-IT alignment. We have empirically illustrated how the explanations provided by three alignment models (functional, structural, and dynamic) complement one another. Our findings support the earlier discussion that no single alignment model can offer a complete understanding of IT alignment and the factors affecting the existence of the alignment.

Based on our findings, this paper provides several suggestions. 1) The functional alignment model should be complemented with amendments in managing the implementation of an organization’s business development and alignment models. 2) The structural alignment model should be complemented by adding organizational practices and policies and monitoring single IT investments. 3) The dynamic alignment model should recognize the magnitude of upcoming changes and whether organizational strategies and structures are ready for it. We have also created a list of questions for business managers to assess and understand the state of alignment in their organizations. After all, understanding, planning, and managing the business-IT alignment and guiding the organization through the issues in a continuously changing environment presents increasing challenges to academics and managers for years to come.

**Acknowledgement**

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References


