



Managing the IT Integration of Acquisitions by Multi-Business Organizations

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MANAGING THE IT INTEGRATION OF ACQUISITIONS BY MULTI-BUSINESS ORGANIZATIONS

Completed Research Paper

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Abstract

Acquisitions are standard components of the growth strategies of many organizations. Frequently, acquisitions raise important questions concerning how and to what extent the acquisition's information technology (IT) needs to be integrated into the IT of the acquirer. We investigate how the initial conditions of business and IT alignment in the acquirer and the acquisition affect the complexity of the post-acquisition IT integration process, in acquisitions of business units by multi-business organizations. Adopting an IT alignment model for multi-business organizations, we explain the complexity of IT integration paths in two acquisitions made by the industry group Trelleborg AB. We identify four initial business and IT strategic alignment conditions where the IT integration process is a simple one-step process exploiting existing business and IT capabilities. Low compliance with these conditions leads to increased complexity because additional business and/or IT capabilities have to be developed to leverage the full potential of the acquisition.

Keywords: IT integration, Acquisition, Multi-Business Organizations, Merger, Strategic alignment, IT capability.

Introduction

Acquisitions are standard and frequently used corporate strategies. Many organizations, including, for example, Cisco and Siemens, have publicly espoused acquisition strategies for capturing economies of scale or acquiring growth options. These organizations frequently complete several acquisitions each year.

When organizations acquire business units, the challenges include the extent of and mechanisms for post-acquisition business and IT alignment (henceforth in this paper called post-acquisition IT integration). The importance of IT integration comes from the fact that many organizations are dependent on IT to carry out their business activities. Consequently, post-acquisition, they cannot function effectively until the IT of the acquired business unit is integrated into the acquirer's IT infrastructure (Evgeniou 2002; Mehta and Hirschheim 2007).

Supporting this critical assumption, Accenture (2006) and McKinsey (Sarrazin and West 2011) report that 45–60% of the expected benefits from mergers and acquisitions (M&As) are directly dependent on post-acquisition IT integration. Consistent with these findings, the limited extant IT literature on M&As concludes that, in order to realize synergistic benefits, IT integration strategies must be aligned to the business acquisition strategies (Giacomazzi et al. 1997; Johnston and Yetton 1996; Mehta and Hirschheim 2007; Wijnhoven et al. 2006).

In addition, Rogers (2005) cites factors relating to IT integration as the third most important reason for M&A failures. These are frequent. Two thirds of M&As are financial failures, according to Bourgeois and Patel (2009). Here, we show that the factors affecting post-acquisition IT integration include the pre-acquisition business and IT capabilities of both the acquirer and the acquisition.

The M&A domain is large and complex. In this exploratory study, we restrict the analysis of post-acquisition IT integration to the acquisition of business units by multi-business organizations. This limits the generalizability of the contribution. However, this restricted domain is sufficiently challenging and under-researched to justify and motivate this paper and so begin to build a theory of post-acquisition IT integration.

Therefore, the question guiding this exploratory research study is:

- How do the initial conditions affect the complexity of the post-acquisition IT integration process in acquisitions of business units by multi-business organizations?

Specifically, the research identifies the pre-acquisition business and IT capabilities that influence the complexity of the post-acquisition IT integration processes. We show how, contingent on four initial conditions, post-acquisition IT integration varies from a simple, one step process, that exploits existing business and IT capabilities, to a multi-step, complex process to build new capabilities.

To do this, we structure the balance of this paper into four sections. The first reviews the literature on corporate and SBU business and IT strategies, presenting an analytical framework to examine business and IT alignment in multi-business organizations. It then applies this framework to develop a model of post-acquisition IT integration and to identify four critical initial conditions. The second presents the methodology. The third describes two acquisitions by the same multi-business organization. In the fourth section, drawing on the two case studies, we show how post-acquisition IT integration is contingent on pre-acquisition business and IT alignment. The implications for theory and practice are discussed.

Literature review and theory development

Acquisitions are undertaken for many reasons, including, for example, capturing the business benefits of scope or scale. Here, we are interested in the process of integrating business and IT strategies post-acquisition to achieve those and other benefits. The basic argument is that business and IT strategic alignment contributes to organizational performance (See, for example, Byrd et al. 2006; Chan et al. 2006; Papp 1999), with alignment defined as the formulation and implementation of decisions linking business and IT to enable an organization to achieve its objectives (David 2003). Therefore, an acquisition that reduces the business and IT strategic alignment would damage organizational value or, at least, fail to realize all of the potential IT-based benefits from that acquisition.

While the IT-based literature on M&As is limited, the evidence strongly supports the general conclusion that IT integration post-acquisition is necessary to capture the anticipated IT-based benefits (Giacomazzi et al. 1997; Johnston and Yetton 1996; Mehta and Hirschheim 2007; Wijnhoven et al. 2006). Johnston and Yetton analyze this issue at the technical, IT function and organizational levels. Giacomazzi et al. identify factors that influence IT integration success and propose a normative model for IT alignment. Wijnhoven et al. combine those three categories with four types of integration modes to develop a variant on Henderson and Venkatraman's (1993) Strategic Alignment Model. Mehta and Hirschheim adopt the IT alignment framework of Hirschheim and Sabherwal (2001) to investigate the factors that influence IT managers' choices of integration solutions.

Taken together, the extant literature highlights the importance of IT integration in acquisitions. In this paper, we add to that literature, examining IT integration in the acquisition of a business unit by a multi-business organization. These organizations need to align business and IT strategies at both corporate and SBU levels (Reynolds et al. 2010). Therefore, post-acquisition IT integration needs to be established at both the corporate and SBU levels.

We begin by describing our use of Reynolds et al.'s (2010) model of alignment. This model has been used to explain the divestment of SBUs from the vendor's perception (Böhm et al. 2010; Fähling et al. 2010; Fähling et al. 2009). However, it has not been applied to the challenge of IT integration from the acquirer's perception. The model is then extended to explain post-acquisition IT integration.

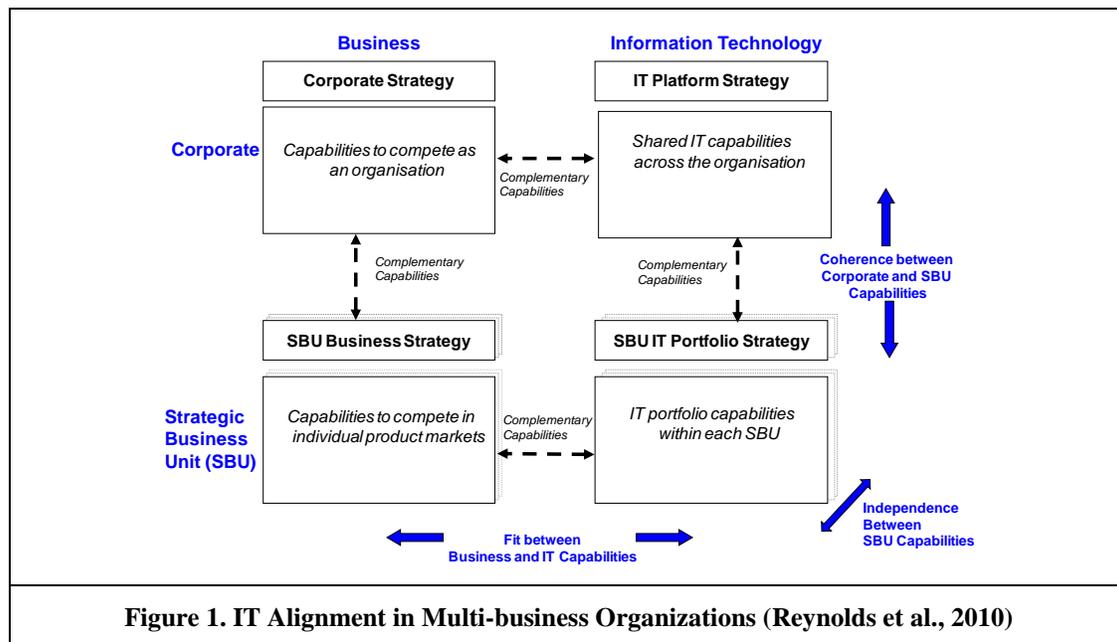
Alignment in multi-business organizations

Multi-business organizations, the dominant form for large organizations, involve multiple SBUs, each of which competes in its own market. Also referred to as multi-divisional or M-Form organizations, superior performance in these organizations is achieved by establishing a number of semi-independent SBUs that allow the organizations to grow and diversify (Chandler 1962; Williamson 1975). In these organizations, strategies are formed at both the corporate and business unit levels (Grant 2002). Corporate strategy specifies how to compete as an organization. This includes the choice of markets in which to compete, the level of sharing of resources across the organization by the SBUs, and the acquisition and divestiture of business units. Strategies at the SBU level specify how to compete in each of those markets.

Managing multi-business organizations requires that their corporate strategies generate and capture synergies by sharing resources across the SBUs. Given that SBU's, by structural arrangement and responsibility reasons, not always have the incitement to share resources beyond the unit, synergy creation is not always a natural process (Gupta and Govindarajan 1986; Gupta and Seshadri 1994). However, without the resource sharing, corporate performance would be simply the sum of the individual SBU performances (Dosi et al. 1992; Teece and Pisano 1994). The extant models of business and IT alignment (See, for example, Henderson and Venkatraman 1993) do not distinguish between corporate and SBU business strategies to align these business strategies with the relevant IT strategies. Instead, they align business and IT strategies either at the corporate level or within a single SBU.

Reynolds et al. (2010) extend those models to include the differences between corporate and SBU level business strategies, and their integration with IT strategies at the corporate and SBU levels. The result is a two-dimensional framework presented in Figure 1, identifying four alignment components (Corporate strategy, SBU strategy, Corporate IT platform, and SBU IT application portfolios) along the two dimensions of functional (Business vs. IT) and organizational (Corporate vs. SBU level) alignment.

The Reynolds et al. (2010) model draws on the resource based-view of strategy (See, for example, Peteraf 1993). Value is created by building IT-based capabilities that complement business capabilities at both the corporate and SBU levels. As shown in Figure 1, organizational alignment requires complementarity between business and IT capabilities at the corporate and SBU levels, coherence between the corporate and SBU strategies, and fit between the IT platform and individual SBU IT portfolio capabilities, while maximizing the independence across SBU IT capabilities. The IT platform capabilities support corporate business strategies and SBU IT portfolios capabilities, and the SBU IT portfolio capabilities support their corresponding SBU business strategies and leverage the IT platform capabilities.



Integrating an acquisition

M&As are activities in which the business resources and capabilities of two organizations are integrated (Sudarsanam 2003). Value is created by the sharing and transfer of complementary resources and capabilities between the two organizations (Capron et al. 1998). Drawing on Reynolds et al. (2010), it is assumed here that, to maximize the value of acquisitions, the merged business and IT based capabilities should exhibit high alignment at both corporate and SBU levels. Conversely, acquisitions that result in low alignment destroy or, at least, do not capture the potential value contingent on successful acquisitions (c.f. Johnston and Yetton, 1997; Mehta and Hirschheim, 2007).

Here, we apply Reynolds et al.'s model (See Figure 1) to identify the initial conditions that influence the complexity of the post-acquisition IT integration. Acquisitions in which acquirers can build on and extend existing capabilities, called path-dependent acquisitions, are less complex and less challenging than acquisitions in which acquirers must develop new capabilities to realize the expected benefits (Capron et al. 1998). The latter, path-breaking acquisitions, occur when acquisitions are used by acquirers to reinvent their business strategies using the acquisitions' capabilities. This type of acquisition is more explorative and more uncertain than path-dependent acquisitions (Karim and Mitchell 2000).

- Proposition 1: Post-acquisition IT integration complexity, defined in terms of the need to build new business and/or IT capabilities post-acquisition, is a function of the initial conditions.

Drawing on the model in Figure 1, the acquisition's IT capabilities are partitioned into two components. One is its infrastructure that can be integrated into or replaced by the acquirer's IT platform. The other is the acquired business unit's IT applications portfolio.

Then, four pre-acquisition conditions, identified below as a function of four sub-propositions, influence the complexity of post-acquisition IT integration. This analysis is similar in form to the analysis by Fähling et al. (2009, 2010) and Böhm et al. (2010) of the IT carve-out of an SBU that is sold by a multi-business organization. Also drawing on Reynolds et al. (2010), Fähling et al. and Böhm et al. show how carve-out project complexity is a function of the initial conditions.

First, drawing on the resource-based theory, a change in business strategy at the corporate level requires the development of new business capabilities to support the new strategy. In addition, this change in corporate strategy would require the development of new IT platform capabilities. Until these new capabilities were developed, business and IT alignment would not be high and performance would suffer.

Formally,

- Proposition 1a: The complexity of the post-acquisition IT integration is a function of the change, pre- to post-acquisition, in the acquirer's corporate strategy.

Second, the acquirer's pre-acquisition IT platform supports its corporate strategy and SBU IT applications portfolios. The authors have been unable to identify or imagine an example in which the acquirer is in low alignment pre-acquisition and, subsequently, post-acquisition, the acquisition results in high business and IT alignment without a change in the acquirer's corporate strategy. Of course, the converse does occur. Formally,

- Proposition 1b: The complexity of post-acquisition IT integration is a function of the acquirer's pre-acquisition level of alignment.

Third, in the case of a simple scope strategy, the acquisition is established as an independent SBU in the acquirer, retaining the acquisition's own unique IT application portfolio that is supported by the acquirer's corporate IT platform. In the case of a simple scale strategy, the acquisition is integrated into the acquirer's relevant SBU, without changing that SBU's strategy or IT applications portfolio.

Simple scope and scale strategies are less complex than acquisitions in which acquirers have to develop new business capabilities. The latter occur in path-breaking acquisitions. These are more explorative than exploitative and, therefore, more complex (Capron et al. 1998; Karim and Mitchell 2000). Formally,

- Proposition 1c: The complexity of post-acquisition IT integration is a function of the degree to which the acquisition is a simple scope- or scale-based strategy.

Fourth, extending the acquirer's IT platform to support an acquisition's IT application portfolio incurs high direct IT-based costs, designing, building and testing the new IT platform capabilities, and significant indirect ones, due to the elapsed time required to develop the new IT capabilities before realizing the IT-based benefits from the acquisition. Formally,

- Proposition 1d: The complexity of post-acquisition IT integration is a function of the need to build new corporate IT platform capabilities to support the acquisition's IT applications portfolio.

Differences in the complexity of post-acquisition IT integration can be treated as continua. In the real world, with changing business requirements and continuous innovations in IT, there is always some potential for misalignment emerging between business and IT strategies. Here, we are interested in the extent that the acquirer needs to develop additional business and/or IT capabilities to preserve or create high post-acquisition IT integration.

When the complexity of post-acquisition IT integration, as specified by Propositions 1a – 1d, is low, the integration of the acquired business unit into the acquirer's organization without reducing the latter's high pre-acquisition business and IT alignment is a simple process. In contrast, when the complexity of post-acquisition IT integration is high, the integration is a challenging, multi-step process.

Methodology

The intent here is to develop a concrete mid-range theory rather than a grand abstract level theory (See, for example, Lee 2010). Based on the exploratory nature of this research, qualitative case analysis was judged to be the most appropriate approach (c.f. Mohr 1982; Yin 1994). The case settings support the examination of how, given different initial conditions, the integration processes evolve through very different states and transformations, and in the key events during those processes (Van de Ven 1992).

This research is part of a large collaborative program with the international industry group, Trelleborg AB. That program is presented in Carlsson et al. (2011) as a socio-technical design science project to build actionable knowledge to improve the management of IT integration in M&As. The research project followed an iterative cycle of problem identification and refinement, theory formulation, design proposition, and design evaluation.

Representatives from Trelleborg were involved in problem formulation and acted as research advisors to conduct "informed basic research with stakeholder advice" (Van de Ven 2007). Initially, existing research

on IT integration in M&As was matched to the IT integration challenges faced by Trelleborg to identify potential kernels for developing design theory. As a consequence of that initial research, the limited existing literature was judged insufficient to serve as the explanatory basis for developing design propositions. Therefore, it was decided jointly by the researchers and Trelleborg representatives to extend the underpinning explanatory theory before the design process could continue. The specific research presented in this paper is part of that detour to develop the explanatory theory (See, for example, Gregor 2006).

Case selection

Early in theory development, cases should be chosen that belong to the categories identified in the theory being formulated. Later, the selection of cases is used to challenge the theory (Yin 1994). Here, we searched for two cases to illustrate the effects of very different initial conditions on post-acquisition IT integration.

The two cases selected are critical in the following sense. One case shows how high complexity, contingent on the initial conditions, requires a multi-step process to deliver high post-acquisition IT integration. The other case shows integration is a simple one step process when the initial complexity is low. Both cases were in the same industry and had been undertaken by the Trelleborg Engineered Systems division in the industry group Trelleborg AB. This controls for some factors that, otherwise, might explain case differences.

In agreement with representatives from Trelleborg, two cases that met the above contrasting initial conditions were selected. Both cases were in the same industry and had been undertaken by the Trelleborg Engineered Systems division. This controls for some factors that, otherwise, might explain case differences.

Trelleborg Engineered Systems

Trelleborg Engineered Systems (TES) is a division in the industry group Trelleborg AB, which is a global industry group with businesses based on processed polymer materials. The group had by 2004 22,000 employees spread over more than 40 countries. Annual sales are approximately €3 billion. TES has about 5,000 employees spread over 30 countries. Its head office is co-located with Trelleborg AB in the small city of Trelleborg, in the south of Sweden. TES describes itself as “a leading global supplier of engineered solutions that focuses on the sealing, protection and safety of investments, processes and people in demanding environments” (Trelleborg 2010).

TES was committed to an 8–10% annual sales growth target over the business cycle. This has been achieved through a combination of organic growth and acquisitions of complementary businesses. Table 1 describes the two acquisitions.

Table 1. Two acquisitions by TES						
Year	Unit	Price (€)	Seller	Business	Unit sales (€)	Unit employees
1996	CMP/Kléber	40 M	Michelin (FR)	Industrial hose	60 M pa	750
2004	Dynaflex	15 M	Manuli (IT)	Specialty hose	15 M pa	50

Whereas the alignment model by Reynolds et al. (2010) have two levels of analysis (corporate and SBU), the Trelleborg Group is organized into three levels: corporate, division, and SBU. For analytical simplicity, the Trelleborg Group and TES Division levels of Trelleborg AB are treated as part of the corporate level of analysis for acquisitions to be managed by TES. Each division of Trelleborg AB has its own distinct corporate culture, way of doing business, unique customer set, and specific IT systems.

TES corporate strategy and IT platform

TES develops, manufactures, markets and distributes industrial fluid systems and engineered solutions based on polymer materials. These products are technically advanced and are designed for demanding

environments found in industries such as the oil and gas industries. TES has centralized IT decisions relating to network capacity, purchase of hardware, IT consulting services, and IT outsourcing. Research and development has limited corporate IT support. Internal and external communication is supported by the corporate website and intranet. Email is a shared Trelleborg Group service

If an SBU within TES runs its own IT systems for purchase and finance, the SBU must integrate them into the central system. IT support for sales is also an SBU responsibility. According to its CIO, TES did not believe that there was any single best ERP system for the Division. Therefore, its SBUs were given a high degree of autonomy to adopt the system most appropriate for their customers and work processes.

Data collection

Table 2 describes the data collected. In addition, interactions between the researchers and Trelleborg management occurred over a period of four years, including general discussions about the problems of managing M&As and annual research reports to Trelleborg.

Interviews were the primary method of data collection. Initial interviews were based on a broad framework, including the management, strategy, organizational learning and IT integration literatures, to identify relevant initial conditions, states, events and transformations in the IT integration process. Business and IT strategic alignment was part of this framework because of its generally recognized importance for leveraging business benefits in acquisitions (Johnston and Yetton 1996; Mehta and Hirschheim 2007; Wijnhoven et al. 2006).

Case	Interviewees	Additional empirical sources
General	CIO (2 times). Head of Business Development, Senior analyst Business Development (2)	Annual feedback sessions (4), annual and periodic reports, visits to headquarters, group discussions.
Kléber	CIO TES (2), Operations manager (3), Sales manager, Plant manager, IT manager, IT developer	Plant visit, warehouse visit, logistics center visit, project plans, internal communication, financial reports, investment requests, system architecture blueprints, systems documentation, IT infrastructure chart, user guides.
Dynaflex	CIO TES (2), Operations manager (2), IT architect (2), System integrator (2)	Plant visit, warehouse visit, project plans, internal communication, architecture blueprints, systems documentation, IT infrastructure chart, user guides
Total	13 interviewees, 22 interviews	-

Interviewees were selected based on their ability to provide information on how managerial, strategic and IT factors interacted in business and IT integration. When selecting the two cases, it was ensured that the key people involved in the Kléber acquisition were still working for the Trelleborg Group and were available for interviews. The subjects included both line and IT executives at senior and middle level management.

Interviews were wide-ranging and conversational to facilitate the collection of information to contribute to both theory development and future data collection. They were recorded and transcribed. Initial coding was made using a comprehensive framework of coding categories based on the management, strategy, organizational learning, and IT integration literatures. Later, parts of the material were re-coded with additional categories representing the constructs of the Reynolds et al. (2010) alignment model in Figure 1 and the four initial conditions developed in this paper [See Appendix A for the coding protocols based on Saldaña (2009) and Guest and MacQueen (2008)].

Following the protocols in Appendix A, the three researchers involved in the coding process coded as group. This increased coding reliability and created a shared understanding of the data. Additional data sources, including documentation (project plans, meeting protocols, presentations to group management,

internal correspondence, etc.) and observation, were used to complement the interviews and to triangulate research findings. Sensitive documents, including, for example, due diligence reports, internal evaluations and other strategic documents, were studied at TES and Trelleborg's premises.

Data analysis commenced immediately after the first round of interviews were completed and continued iteratively throughout the research project. This analysis followed the congruence method of George and Bennet (2004) in which the process of theoretical generalization begins with a theory and then investigates the ability of the theory to explain an outcome in a specific case. Early interim-analyses focused on the applicability of analytical concepts. Subsequent analyses developed rich case studies supported by quotes and document references to ensure empirical support for the emerging stories. The rich cases were shared with Trelleborg employees to get feedback representativeness of findings. Finally, the 'essence' of the cases was condensed into the case stories that are presented in this article.

The theory in practice

The processes to deliver high post-acquisition IT integration in the two acquisitions described here were very different, contingent on their initial conditions. It took ten years to integrate Kléber into TES. In contrast, it took three months to integrate Dynaflex.

The analysis begins with brief descriptions of the two cases. Drawing on Reynolds et al. (2010), models are developed of the different paths to IT integration in each case. A comparison of the models shows how the complexity of the paths is contingent on the initial conditions.

The Kléber case

Kléber was an acquisition by TES to build a scale-based, low cost business in the hose industry. Two factors made Kléber an attractive acquisition. One was the match between the product lines of the existing TES unit and Kléber. TES expected to capture economies of scale in production, sales and distribution. The other factor was that Kléber was underdeveloped, and presented a potential growth option for the Trelleborg Group. To realize these benefits, the existing TES niche hose business and Kléber were combined to form a new SBU called Trelleborg Industrial Hose (TIH).

“In terms of production, the two units... .. were very compatible..... Overlapping was also limited in geographical terms. Trelleborg was more Nordic, more niche. Kléber was more Continental, had a larger product range, and had a wider distribution network. Basically, the companies competed in the same market only in Germany. Kléber had strong market shares in some key countries. Kléber was not profitable due to lack of management support and investment. Michelin did not realize the potential of Kléber's market position.” (TIH CFO).

Before making the substantial investments required to develop this growth option, the Trelleborg Group wanted control and insight into the operation of the new TIH business. To achieve that, TES took one immediate action and planned a second. The former, to gain control, was to appoint a Swedish management team and to replace the French suppliers to Kléber with the Swedish suppliers to the pre-acquisition TES hose business. The latter planned action, to gain insight, was to port the Kléber IT systems, based on the in-house developed ERP system Bergounix, onto the Movex platform used by TES.

Two years after the acquisition, the Swedish team had failed to deliver on both strategies. It had not developed the business and IT capabilities to run a scale-based, low cost hose business. The Swedish team had also failed to port the Kléber systems onto the Movex platform used by TES. The platform was highly customized to meet the specific local requirements in TES's multi-national business structure. Its redeployment to support TIH would have required further extensive customization. The cost was unacceptable and the proposed action was cancelled.

“At the end of 1998, they came to the conclusion that it would take about 1000 working days to develop the new Movex system to support the Kléber development and integration It was too much. It couldn't be justified with future savings.” (TIH operations manager).

The Swedish team was replaced by a French management team. TIH was restructured to capture scale advantages. Production was moved from Trelleborg to the former Kléber site to capture production-based

economies of scale, and TIH was restructured. Single functional heads were appointed in a centralized cost focused structure, and IT was standardized and centralized on the Kléber Bergounix IT platform to reduce distribution and IT operating costs. Later, the Bergounix IT platform, which was expensive to maintain and extend, was replaced by a standard Movex-based system. Finally, the IT strategy was aligned with the new scale-based low cost business strategy. New business and IT capabilities had been developed. Costs were reduced and TIH became profitable.

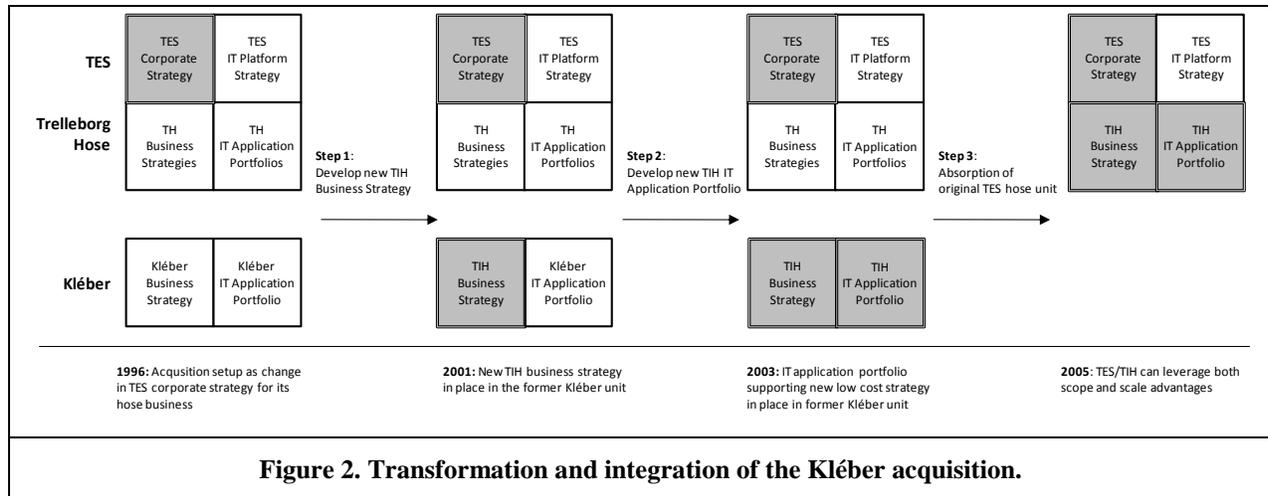
“We redrew the organizational chart completely... .. But in 2001 we had real problems with the infrastructure and IT. The Bergounix system was 10 years old. It was hard to support and didn’t fit with other systems in TES. When we tried to add modules, it was complex and expensive... .. We decided to buy a prestudy, comparing Movex to the other standard packages available... .. The idea was to check if Movex was competitive with the others... .. The ERP system itself was not what was interesting for us, that was the basics. It should just support our business at a low cost. What we were interested in was, for example, the supply-chain module that we are implementing right now. But that we couldn’t have done without first putting the whole business unit into the same Movex application.” (TIH operations manager)

“Since 1999 we have improved every year. In 1999, three years after the acquisition, we lost €3 million. The ROA [Return On Assets] was negative, while for the Trelleborg Group the standard was 15%. We have improved every year since then and last year we had a ROA of 17%. The profit was more than €7 million. Turnover was €100 million. It’s a good improvement, and a good result... .. This year [2006] the ROA will increase to 21% or 22 %” (TIH operations manager).

Table 3 presents the initial conditions of the Kléber acquisition. Pre-acquisition, the acquirer’s niche strategy was inconsistent with its post-acquisition low cost, growth strategy; the acquirer’s hose business was not aligned with the Trelleborg/TES strategy of focusing on core businesses; Kléber was a business transforming acquisition and not a simple scale-based strategy; and the Kléber IT application portfolio could not be integrated with the existing ERP system of the TES hose business. In this context, each of the four propositions, Propositions 1a-1d, predicts high post-acquisition IT integration complexity.

Table 3. The initial conditions and post-acquisition complexity in the Kléber acquisition	
Initial conditions	Level of post-acquisition IT integration complexity
1: There was a major change, pre- to post-acquisition, in the acquirer’s corporate strategy.	High: The acquisition was made to transform the business strategy for the TES hose business, replacing its niche strategy with a low cost, scale-based growth strategy.
2: Pre-acquisition, the acquirer is in low alignment.	High: TES produced standard hose products, supported by high cost customized ERP and production systems.
3: The acquisition is not a simple scope or scale strategy.	High: Kléber was a business transformational acquisition.
4: New corporate IT platform capabilities are required to support both the acquisition’s IT applications portfolio and the new low cost growth strategy.	High: The cost of developing the existing TES hose ERP system to support Kléber’s IT application portfolio was very high and could not be justified.

Figure 2 presents the three-step post-acquisition IT integration process. Grey areas indicate new, developed capabilities. Effectively, after its acquisition, Kléber was an independent organization, decoupled from the Michelin Group. After exploring a number of ineffective options, TIH developed a new growth strategy. Based on the pre-acquisition Kléber unit, a new IT strategy to support the low-cost scale strategy was implemented. Finally, the original TES hose unit was integrated into the TIH business and its IT application portfolio was ported onto the new Movex platform that had been developed for the Kléber acquisition.



The Dynaflex case

In March 2004, TES made a second acquisition in the hose industry, acquiring the niche-player Dynaflex from Manuli, an Italian industry group. At that time, TES's hose business, TIH was highly profitable with a low cost position in the market for industrial hose. While both TIH and Dynaflex had production operations located in France, their core customers and products were independent.

“Within the hose business, there are two different markets. Hydraulic hoses are for high pressure application and composite hoses are for low and medium pressure. Dynaflex had focused on the former and TIH on the latter... Before the deal was done, TIH had purchased a limited range of products from Dynaflex. After the acquisition, they became major distributors of each other's products. They did not manufacture competing products.” (TIH Systems integrator).

TIH manufactured and serviced a wide range of hose products. Dynaflex specialized in the production of hydraulic hoses for the oil and petro-chemical industries, and enjoyed a reputation for technological leadership. Therefore, the acquisition of Dynaflex was a simple scope-based, related product acquisition. TIH enhanced its product palette, becoming a distributor of Dynaflex products. The strategic intent was to grow the Dynaflex product line, for example, by launching its products in new markets where TIH already had a strong market position.

“The Trelleborg group does not acquire a company that is already successful. Rather, it prefers to see future potential and either develop the company or introduce its products to new countries. For example, in this case, we launched Dynaflex products in the U.K., where Dynaflex previously had not had any customers.” (TIH Operations manager)

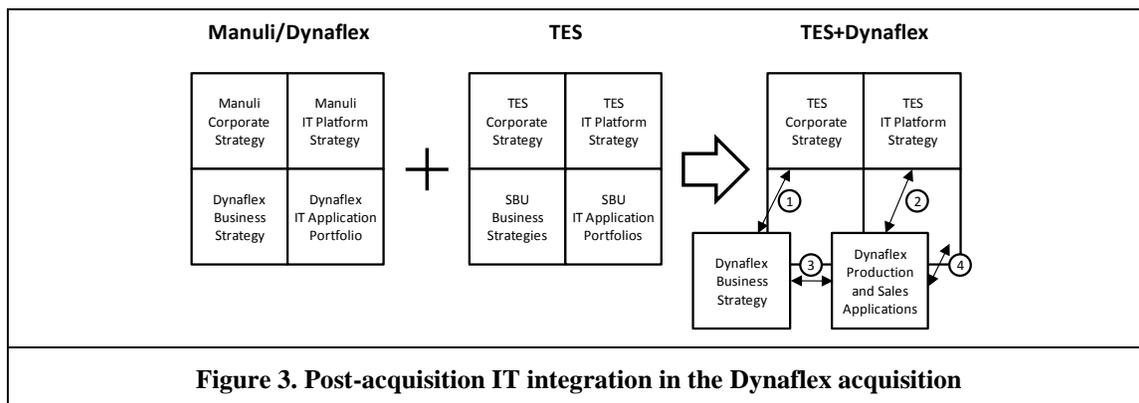
The initial conditions for the Dynaflex acquisition were very different from those for the Kléber acquisition (See Table 4). The acquirer's pre-acquisition strategy of growth was consistent with the scope-based acquisition of Dynaflex. Pre-acquisition, TIH was in high alignment based on the model in Figure 1. Dynaflex was a simple scope-based acquisition and its infrastructure was replaced by the acquirer's IT platform. Each of the four Propositions, 1a – 1d, predicts low post-acquisition complexity and a simple one step IT integration path.

“We didn't really need to program that much. We used existing processes that we had created for previous projects. I think that we only created one or two new processes. For the rest, we could either reuse what we had or use Movex standard processes. We needed to investigate the databases and move the items to Movex. Databases are where you normally spend the most time. You have to go through which products, customers, etc you want to transfer and make sure that you transfer them in the right way.” (TIH Systems integrator)

Table 4. The initial conditions and post-acquisition complexity in the Dynaflex acquisition	
Initial condition	Level of post-acquisition IT integration complexity
1: There was no change, pre- to post-acquisition, in the acquirer's corporate strategy.	Low: The acquirer's pre-acquisition corporate growth strategy was consistent with its post-acquisition strategy.
2: Pre-acquisition, the acquirer is in high alignment.	Low: Having fully integrated the Kléber acquisition, TIH was in high alignment.
3: The acquisition is a simple scope strategy.	Low: No new business or IT capabilities needed to be developed.
4: The TIH Movex platform can support the Dynaflex application systems.	Low: The Dynaflex IT infrastructure was replaced by the TIH Movex platform with minor development to that platform. No new IT capabilities were needed.

Dynaflex's IT production system was retained as an independent IT system, while sales and distribution IT were ported onto TIH's new Movex-based ERP system. This had recently replaced the Bergounix-based application portfolio at TIH. The capabilities developed during that replacement helped TIH to manage the Dynaflex integration. Furthermore, with its financial systems integrated with the TES platform, Dynaflex also became integrated into the general Trelleborg IT platform for financial control and monitoring. Full business and IT integration was achieved quickly and successfully, given the initial conditions.

Figure 3 shows the one step process followed to integrate Dynaflex with TES. This was consistent with the TES growth by acquisition strategy and did not require the development of new business or IT capabilities. Links 1 and 2 in Figure 3 satisfy the coherence condition in Figure 1. The Dynaflex business and IT capabilities were retained and, therefore, link 3 in Figure 3 remained in fit. Finally, the Dynaflex restricted, production-based application portfolio was independent of other SBU IT portfolios. Consequently link 4 satisfies the independence condition in Figure 1.



Cross case analysis

Consider the Kléber and Dynaflex cases in terms of the effects on their post-acquisition IT integration of the different initial conditions (See Tables 3 and 4). Kléber was an acquisition to reposition an existing SBU, changing its niche strategy to a low cost, scale-based growth strategy, based on delivering a standardized product into different geographical markets. In contrast, the Dynaflex acquisition positioned TIH to capture the benefits of scope in a product segment it did not service in geographical markets that it already serviced.

The Kléber acquisition involved a complex set of post-acquisition IT integration decisions. Pre-acquisition, the acquirer, TES, operated a niche-based SBU strategy and wanted to either divest or grow that SBU. A larger competitor SBU was offered for sale and acquired. The strategic intent was to capture the potential economies of scale.

The initial conditions of the acquisition predict a complex post-acquisition integration process. The acquisition changed TES's existing SBU's pre-acquisition strategy from a niche to a scale-based strategy. This required the development of both new business and IT capabilities.

Post-acquisition, the consolidated SBU, TIH, had to build the capabilities to transform a niche strategy into a scale-based strategy. In addition, the acquirer's IT platform could not support Kléber's IT application portfolio. Initially, post-acquisition IT alignment at both the corporate and SBU levels was low. This limited TIH's ability to both implement the growth strategy and realize other potential IT-based benefits from the acquisition. This case also raises the question of the order in which to address the factors that contribute to the high post-acquisition IT integration complexity.

In the Dynaflex acquisition, the four initial conditions predict a simple post-acquisition IT integration process. Under those conditions, the acquisition was integrated into the acquirer by establishing the acquisition as a new product line in TIH. No new business or IT capabilities needed to be developed. Post-acquisition IT integration was high, realizing the expected benefits from the acquisition. Table 5 depicts the different needs for capability development in the two acquisitions.

Table 5. Business and IT capability development		
Capability	Kléber acquisition	Dynaflex acquisition
Corporate Business Strategy	Develop: Existing strategy for the hose business had proven unsuccessful in both TES and Kléber. A new scale-based, low-cost strategy was developed utilizing the combined capacity.	Use: Pre-acquisition both TIH and Dynaflex were performing well. It was decided to keep Dynaflex as a brand and independent product line.
Corporate IT Platform Strategy	Use: Having been a divestment candidate for a long time, Kléber was effectively a stand-alone business that could be sustained independently. It was slowly moved over to the TES platform.	Use: Dynaflex was kept as a separate product line, using the TES infrastructure to replace what previously had been provided by the Manuli Group.
SBU Business Strategy	Develop: With its starting point in the former Kléber unit, a new SBU business strategy, implementing the scale-based corporate strategy, was developed.	Use: Dynaflex was maintained as an independent product line, retaining its business strategy and capabilities.
SBU IT Applications Portfolio	Develop: The new scale-based, low-cost strategy was not supported by the highly specialized applications portfolio.	Use: Dynaflex retained its pre-acquisition production applications portfolio, leveraging existing Movex modules from TIH for other IT applications.

Discussion and Conclusions

This section begins by reviewing the above findings and critically assessing Proposition 1. The limitations of and validity threats to the findings are then discussed. Finally, the implications for theory and practice are explored.

Kléber was a business transforming, path-breaking acquisition, requiring the development of new business and IT capabilities at both the SBU and corporate levels. Its integration path was long and complex. In contrast, the Dynaflex acquisition strategy was based on realizing the potential benefits of increased scope. It positioned TIH in a growth segment of the industry and leveraged TIH's distribution system. No new business or IT capabilities had to be developed.

As Proposition 1 states, differences in the need for capability development between the two cases is a function of differences in the initial business and IT conditions. Tables 3, 4 and 5 report the initial conditions and post-acquisition IT integration in the two acquisitions. In the Kléber acquisition, the pre-acquisition business and IT capabilities within the TES hose business and Kléber could not be integrated initially within TIH to achieve high post-acquisition IT integration. In contrast, in the Dynaflex case, the initial conditions enabled Dynaflex to be “plugged” into TIH without reducing the high business and IT strategic alignment of either TIH or Dynaflex.

The IT challenges contingent on the acquisition of Kléber are reported in Tables 3 and 5. These became highly salient to the TIH management when the new French management team reviewed the cost of extending the existing hose business’s IT systems to support the acquired unit. The cost was prohibitive. Instead, a new SBU application strategy was developed. With the Kléber unit being four times larger than the original TES hose unit, the new scale-based SBU IT strategy was developed based on the pre-acquisition Kléber business in Clermont-Ferrand.

Limitations and validity threats

The major limitation of this analysis is its restriction to the acquisition of a business unit by a multi-business organization. It does not include the acquisition of a multi-business organization by another multi-business organization, or the merger between two such organizations. Both are much more complex events than the acquisition of a business unit that is analyzed in this exploratory research study.

In this paper we have limited the analysis to the consequences of initial conditions of business and IT-alignment conditions and the influence on IT integration complexity. We are by no means suggesting that the alignment conditions are the only contingencies influencing post-acquisition IT integration. Obviously factors such as time pressure exacerbating the IT integration process, the sheer size of the units to integrate, scale and scope of databases, and the reliance on IT for critical business operations are also part of the IT integration challenge. However, in this article we have described that the post-alignment conditions also constitute an important explanation to the IT integration challenge. Subsequent research should investigate the weight of contributing explanations and under which circumstances the different sources are interacting to accelerate or alleviate IT integration challenges.

The major validity threat to the findings reported is whether the relative sizes of the acquisitions could explain the differences between the two acquisitions. Dynaflex had sales of €15m pa and employed 50 people. Kléber had sales of €60m pa and employed 750 people. Against an explanation based on scale, both acquisitions were small compared with the size of both Trelleborg and TES. The former had sales of €3b pa and 22,000 employees, and the latter had sales of €500m pa and 5000 employees when completing the Dynaflex acquisition in 2004. In addition, Dynaflex and Kléber were similar in that they were single line of business units. Size may have played a minor role in differences in post-acquisition IT integration and should be investigated in subsequent research. However, it is difficult to see how size accounts for the specific events in the Kléber integration over ten years.

Implications for theory

This paper makes four theoretical contributions to the area of post-acquisition IT integration. First, it explains how the complexity of post-acquisition IT integration is a function of four initial conditions. Second, the analysis shows how the alignment model of Reynolds et al. (2010) can be extended to explain post-acquisition IT integration as a special case of IT (re-)alignment. Third, the research begins to identify the initial conditions, and business and IT capabilities required to successfully manage post-acquisition IT integration. Fourth, the analysis begins to develop a theory of post-acquisition IT integration.

First, the four initial conditions specify the context in which post-acquisition IT integration is a one-step process. The acquirer assimilates the target using existing capabilities. Consistent with this, Capron et al. (1998) report that exploitative acquisitions can be implemented without the exploratory process of building new capabilities. In addition, (Karim and Mitchell 2000) report that exploitative, compared to exploratory, acquisitions are more successful in creating financial value. The four initial conditions also specify the context in which post-acquisition IT integration is a complex, multi-step process.

Adopting a critical case approach, we investigated one acquisition that the initial conditions predicted would be a simple post-acquisition process and one predicted to be complex. Future research should investigate different combinations of initial conditions. An important question to be addressed is: Does the complexity of post-acquisition IT integration increase linearly or exponentially with increasingly challenging initial conditions?

Developing capabilities requires time. Mehta and Hirschheim (2007) recognize that many IT integration decisions are taken under significant time pressure to realize the expected acquisition benefits, including the IT-based benefits. Time pressures would not be a problem in the Dynaflex case. However, in the Kléber case, there would have been significant blowouts to the time and cost of the initial integration plan. Establishing an appropriate and feasible timeline for integration is critical.

Second, integrating existing research on redeployment of capabilities in acquisitions with the strategic alignment model of Reynolds et al. (2010) explains why some acquisitions are more challenging than others and require more effort to integrate IT post-acquisition. The findings confirm the importance of distinguishing between acquisitions that exploit existing capabilities, and those that require the exploration of new business and/or IT capabilities to achieve IT integration.

Third, this analysis indirectly suggests that there are two different types of initial conditions. One set, the set researched here, describes the acquisition in terms of how exploitative versus explorative it is. The other type describes the acquirer's capabilities to manage IT integration. The former asks: How high is the bar? The latter asks: How high can the organization jump?

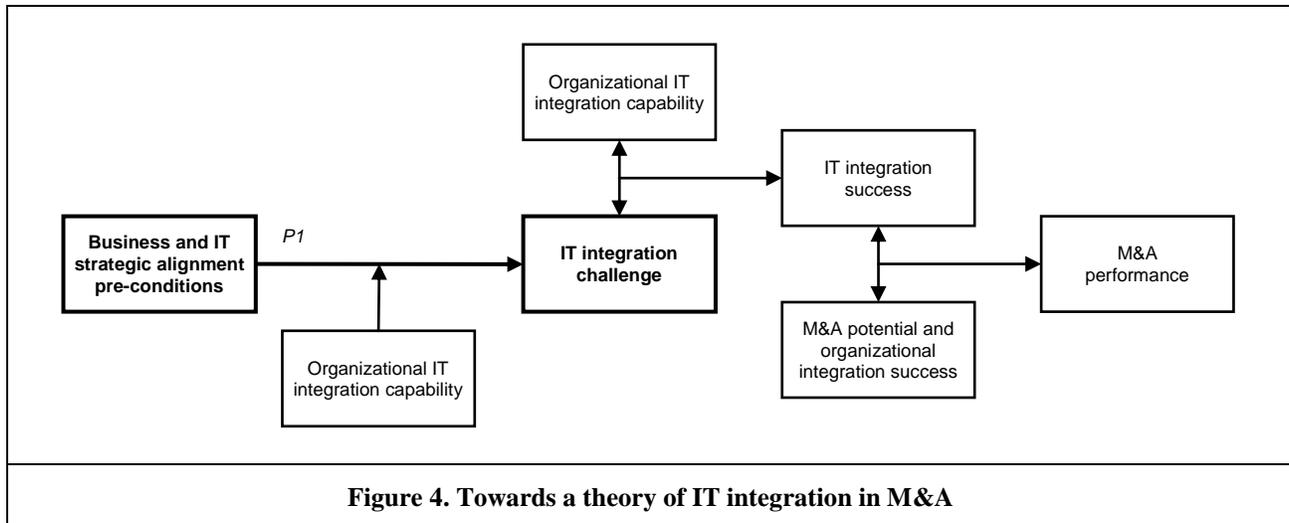
Organizational ability to manage IT integration is positively correlated with the financial performance of M&As (Tanriverdi and Uysal 2011). The Dynaflex case shows how the capabilities, developed by TIH to implement the Movex roll out, facilitated the integration of Dynaflex into TIH and TES. Future research on post-acquisition IT integration should model both the initial conditions, concerning the complexity of the integration in terms of the development of new business and IT capabilities, and the acquirer's existing capabilities to develop those new capabilities. For example, a multi-business organization, with no prior experience in integrating IT post-acquisition, would need to develop both types of capabilities to manage a transformational acquisition. This would be a major challenge over an extended period.

Fourth, drawing on Proposition 1 and the above analysis, we begin to develop a theory of post-acquisition IT integration to be used as the foundation for developing design theory propositions for successful post-acquisition IT integration. In terms of design theory components (See Gregor and Jones 2007), we refine the definitions of purpose and scope, showing that successful acquisitions of business units by multi-business organizations require IT strategic integration at both the corporate and SBU levels. We also define four new theory constructs. These are the initial conditions of business and IT strategic alignment at corporate and SBU levels. Identifying the initial conditions and exploring the various paths to deliver high post-acquisition IT integration contributes to the development of principles governing form and function.

Figure 4 maps where our contribution is located in relation to existing knowledge about IT integration in M&As. This location is highlighted in bold. IT integration success is the combined outcome of the initial conditions and the acquirer's capabilities to integrate an acquisition.

We identify two different levels of IT integration challenge, contingent on the initial conditions. One is the exploitative use of existing IT capabilities. The other is the explorative development of new IT capabilities that support a business strategy combining the strengths of both acquirer and acquired units. In the Dynaflex case, a potential exploitative capability contributed towards a successful, low resource integration project. Drawing on their experience of moving the Kléber systems onto the Movex platform, the integration team quickly and successfully integrated Dynaflex into TIH.

In the Kléber case, management initially, at the time of the acquisition, struggled with the challenge of explorative-based development. A critical additional resource was the new operations manager, who had recently implemented a low cost IT structure at his previous organization. He brought knowledge and practices to develop the IT explorative-based capabilities required by TIH. The next step in theory development would include an analysis of the interaction between organizational IT integration capabilities and the nature of the specific IT integration challenge.



Implications for practice

The Kléber case illustrates the problems that are frequently described in the media when explaining the failures in managing acquisitions. In contrast, the Dynaflex case demonstrates why those problems are not always present. Taken together, the cases show how differences in post-acquisition IT integration processes are a function of differences in the initial conditions. This analysis has five implications for successful practice

First, the findings presented above enable practitioners to better understand the link between post-acquisition IT integration and value creation in acquisitions. For organizations involved in acquisitions, understanding the importance of the initial conditions provides help in two areas. One is that it identifies those SBUs that would be either easy or difficult for the potential acquirer to integrate. Rather than accept the high integration cost of business unit acquisitions whose initial conditions are similar to Kléber, acquirer's should, whenever possible, find other easier and lower integration cost targets.

Second, this paper identifies some of the challenges to be overcome when a potentially challenging acquisition is acquired. The four initial conditions identify the new business and/or IT capabilities that need to be developed. These initial conditions also help plan the sequence of changes and to identify the appropriate time line.

Third, best practice in post-acquisition IT integration for multi-business organizations benefits from recognizing that IT integration is a multi-level process. The IT integration with business on both corporate and SBU levels typically implies, as was the case in the Kléber acquisition, deconstructing a single level IT infrastructure. This makes the acquirer's IT architecture a potential major factor in a successful integration strategy.

Fourth, the Dynaflex acquisition illustrates that IT integration of an SBU from another multi-business organization is frequently subject to severe time pressures. The SBU is supported by its prior owner's infrastructure for a limited period. Frequently, the integration project contract limits important IT support by the vendor's IT platform to a maximum of six months.

Finally, for organizations that adopt a growth by acquisition strategy, the findings presented here, combined with the findings reported by Tanriverdi and Uysal (2011), suggest the need to develop specific capabilities to manage post-acquisition IT integration. These would be corporate capabilities, for example, located at the Trelleborg level that could be assigned to project teams responsible for integrating acquisitions.

Appendix A - Coding

First phase coding of interviews essentially followed the approach for *descriptive coding* described by Saldana (2009). Coding was made by themes in passages. Inspired by Strauss and Corbin (1990) a technique similar to *systematic categorization* was employed, with *a priori categories* based on previous literature (see below). Second phase coding was made by *events and states*, representing the combination of coding categories. Following protocols based on Saldaña (2009) and Guest and MacQueen (2008), the three researchers that were involved in the coding process coded as group. Categorization of passages was made using *constant comparison* to passages already coded with the same categorization. Based on event series, extensive case stories were written and shared with interviewees for verification.

Table A. Coding Categories			
Category/Code		Classification	Indicative references
A. Synergetic potential			
a1	Technical economies	Marketing, Production, Experience, Scheduling, Banking, Compensation	(Howell 1970; Shepherd 1979)
a2	Pecuniary economies	Monopoly, Monopsony	(Porter 1980; Shepherd 1979)
a3	Portfolio economies	Related, unrelated	(Higgins&Schall, 1975; Lewellen, 1971)
a4	Resource redeployment	R&D, Manufacturing, Marketing, Managerial, Financial	(Capron et al,)
a5	Growth path	Path-dependent, path-breaking	(Karim& Mitchell, 2000)
B. Organizational Integration			
b1	Interdependency type	Pooled, Sequential, Reciprocal	(Thompson 2003)
b2	Degree of Integration	Holding, Preservation, Symbiosis, Absorption	(Haspeslagh and Jemison 1991)
b3	Integrated Activity	Operational, Functional	(Barki and Pinsonneault 2005)
C. Intentions & Reactions			
c1	Friendliness/ Hostility	Rescue, Collaboration, Combination, Takeover	(Pritchett 1985)
c2	Reaction	Turnover rate, Level of distrust	(Buono and Bowditch 1989; Napier 1989)
D. IS Ecology			
d1	Supported activity	Operational, Functional	(Barki and Pinsonneault 2005)
d2	Strategic importance	None, Enabling, Utility, Strategic	(Weill and Broadbent 1998)
E. Integration Architecture			
e1	Integration level	IT, Infological, Organizational (business)	(Al Mosawi et al. 2006; Iivari 2003)
e2	Integration structure	P2P, Middleware, Enterprise, Meta-level, SOA	(Davenport 2005; Markus 2000; Zhu 2005)
F. IS integration role			
f1	Proactivity	Proactive improvement, Proactive matching, Reactive	(McKiernan and Merali 1995; Merali and McKiernan 1993)
G. Alignment			
g1	Acquirer pre	High-Low	(Dosi et al., 1992, Teece and Pisano, 1994, Reynolds et al., 2010, Ross et al., 2006)
g2	Target pre	High-Low	
g3	Acquirer post	High-Low	
g4	Target post	High-Low	
L: Improvements and organizational learning			
l1	Double and single loop learning	Norms and values, detection and correction of errors, feedback, reflection, goals, plans, rules.	(Argyris and Schön, 1974, 1978, 1996 Edmondson and Moingeon; 1999)
l2	Exploration and Exploitation	Search, variation, risk taking, experimentation, discovery, innovation, refinement, choice, efficiency, selection, implementation	(March, 1991; Levinthal and March, 1981; Weick and Westly, 1996, Cyert and March, 1963; Simon, 2001; Weick, 1979)
l3	Externalization and Internalization	Willingness, Autonomy, Fluctuation	(Nonaka, 1994; Nonaka and Takeuchi, 1995)

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