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A Framework for Understanding Post-Acquisition IS Integration

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Abstract

The number of mergers and acquisitions (M&A's) is increasing all over the world. As a result, more and more firms face the challenges of integrating e.g. operations, personnel, information systems and R&D once the deal is closed. Information systems (IS) issues are important in the overall merger processes and for its success. However, both post-merger integration and post-merger IS integration receive little attention in the literature. This paper attempts to fill that gap by exploring the relationship between what influences and shapes post-acquisition IS integration and how it consequently evolves. Based on a synthesis of prominent IS literature, an analytical framework is developed using three perspectives: 1) the structuralist, 2) the individualist and 3) the interactive process perspective. Each supplies a set of key concepts for conceptual understanding and empirical exploration of post-acquisition IS integration in practice. The analytical framework is applied to a longitudinal case study of post-acquisition IS integration in a print house after it acquired a plant from a competitor, where tailored software was chosen to enable better integration and coordination of the production capacity.

Keywords: mergers, acquisitions, M&A, information systems, IS integration, post-merger integration

1. Introduction

Mergers and acquisitions (M&As) have become a prominent tool for corporate strategy and the number of M&As is ever-increasing worldwide. As a result, more and more firms face the challenges of integrating operations, personnel, information systems and/or R&D once the deal is closed. Often, this integration is not without problems.

On March 4th 2007, 500 US Airlines passengers missed their flights at Charlotte-Douglas International Airport and altogether thousands of US Airways passengers suffered long delays. Some passengers claimed they had not been able to speak to a ticket agent after waiting for more than two hours. This happened because of a problem with the reservation system and the fact that the automated kiosks did not work. The underlying reason was that the same day, the airline was trying to combine the reservation systems of US Airways and America West, two years after their merger in 2005. (Post-gazette.com March 05, 2007)

This example illustrates the importance of post-merger IS integration in practice and how problems in information systems integration frequently result in delays, lost opportunities, decreased revenues (Cf. Stylianou, Jeffries et al. 1996) and huge capital costs (Merali and McKiernan 1993; Harrell and Higgins 2002). Potential counter-synergies can be hidden in information systems (Robbins and Stylianou 1999).

The importance of post-merger integration is derived from the fact that value creation can only begin when the organisations start to work towards the purpose of the acquisition. In other words, the integration is the source of value creation. Besides this, faulty integration is a significant cause of merger failures (Shrivastava 1986; Haspeslagh and Jemison 1991; Habeck, Kröger et al. 2000). Information systems integration is noted as one of the crucial issues in overall post-merger integration and ultimately for the success of the merger or acquisition (I/S-Analyzer 1989; Merali and McKiernan 1993; McKiernan and Merali 1995; Weber and Pliskin 1996; Chin, Brown et al. 2004; Mehta and Hirschheim 2004; Wijnhoven, Spil et al. 2006). Also business journals have recently recognized post-merger IS integration as an important contemporary topic (e.g. Montana 2000; Harrell and Higgins 2002; Honore and Maheia 2003; White-Dollmann 2004).

There is however a paucity of post-merger IS integration research, the phenomenon is little understood and the scholarly literature on post-merger IS integration is scarce, as noted by, for example (I/S-Analyzer 1989; Cossey 1991; Merali and McKiernan 1993; McKiernan and Merali 1995; Stylianou et al. 1996; Goodwin 1999; Mehta and Hirschheim 2004). This is in concordance with the findings of Parvinen (2003): after reviewing the 567 M&A related articles published in 65 management science journals in the 1990s, he concluded that "post-integration management… enjoy[s] conspicuously little attention". In our search for post-merger IS integration literature, we examined the titles of the articles reviewed by Parvinen (2003), and found 15 titles that had any

reference to the post-merger integration activities. We inspected these papers, and only one (McKiernan and Merali 1995) contained the words "Information Systems".

We also searched for published research papers in ten reputable IS journals (as identified by e.g. Mylonopoulos and Theoharakis 2001; Vessey, Ramesh et al. 2002): Information Systems Research (ISR), Journal of Management Information Systems (JMIS), MIS Quarterly (MISQ); Communications of the ACM, Information and Management, Management Science, Harvard Business Review, Decision Sciences, Decision Support Systems, and the European Journal of Information Systems (EJIS). The search covered all papers electronically available by the end of 2005. In these journals, we searched articles that contained the words "merger" and "acquisition", as they would cover also articles containing words such as "mergers", "acquisitions", "post-merger" and "post-acquisition". In brief, only five papers were found in these journals, four in Information & Management and one in MISQ.

M&As are frequently described as phased processes (e.g. Haspeslagh and Jemison 1991) that can be roughly divided into pre-merger (or pre-acquisition) activities, closing the deal, and post-merger (or post-acquisition) integration. This paper discusses integration of the information systems after an acquisition, focusing on the organizational implementation.

The paper aims to improve the understanding of post-acquisition IS integration processes, and our research question thus is: what influences the post-acquisition IS integration process and how is it shaped? The empirical part of this paper discusses the case of a print house acquiring a plant from its competitor. In this case, the management opted for the integration of the computer-based information systems controlling the production process.

The paper is organized as follows. In the next section, we develop an analytical framework for understanding the post-acquisition IS integration. The framework consists of three perspectives: the structuralist, the individualist, and the interactive process perspective, each of which applies a set of key concepts for conceptual and empirical evaluation. In Section 3, our research approach is described.

In the fourth section, the post-merger IS integration process is described as it took place in the case company. In Section 5, the features of the post-merger IS integration process are reviewed and explained through the lens of the analytical framework. Finally, the findings and their implications are discussed, and some conclusions are drawn in sections 6 and 7.

2. Theoretical Background

In the M&As literature, the use of the term "merger" is confusing, as it is frequently employed to cover both activities; merger of equals, and merger by acquisition in which

the parties are non-equal in terms of their size and power, or the terms are used interchangeably (Granlund 2003; Parvinen 2003; Mehta and Hirschheim 2004; Wijnhoven et al. 2006). Similarly, this paper uses the terms "merger" and "post-merger" to cover both mergers and acquisitions, especially when reviewing previous literature that uses the terms in this sense. The terms "acquisition" and "post-acquisition" are used to emphasize that the situation in question involves the power difference of the "acquirer" and "acquired" parties. These terms are used both when reviewing previous literature that explicitly speaks of situations where one of the parties is larger and more powerful, and also when discussing the case study. The acquired party may be an entire company, or a smaller asset (Wijnhoven et al. 2006) such as the acquired plant in the empirical part of this study.

Very few papers define integration explicitly. In this paper, the term integration is used to imply a 'blending together of organizational components' (Cf. Shrivastava 1986; Mehta and Hirschheim 2004). The depth of post-merger information systems integration ranges from maintaining the status quo, to different types of partial integration (e.g. front-end or back-end integration only), to full integration. Integration may be achieved by adopting one company's system, 'picking and mixing' when the best applications are taken from each system, acquiring a new system, or by outsourcing (cf. I/S-Analyzer 1989; Giacomazzi et al. 1997; Goodwin 1999; Bentley 2002; Harrell and Higgins 2002).

Previous studies on post-merger IS integration examine the role of IS in the merger context (Merali and McKiernan 1993; McKiernan and Merali 1995; Weber and Pliskin 1996), discuss the strategic decisions and the strategic decision-making process related to post-merger IS integration (Main and Short 1989; Giacomazzi, Panella et al. 1997; Wijnhoven, Spil et al. 2006), and analyze the factors affecting post-merger IS integration success (Stylianou, Jeffries et al. 1996; Robbins and Stylianou 1999). Johnston & Yetton (1996), in their study on integration in a bank merger, focus on the IT departments and discuss their organizational level fit. In this branch of the literature, a strong emphasis lies on the contextual issues, even though the studies conclude that the most important determinants of post-merger IS integration success are the managerial actions. Granlund (2003) however concludes that contingency factors do not alone offer a sufficient explanation for the evolution of management accounting systems following a merger, and examines the process of change from multiple theoretical and conceptual perspectives, including Giddens's (1997) structuration theory which suggests that structure and action are inseparable and hence form an interactive process.

Our work builds on their insight, and we use similar concepts and share similar assumptions about their interrelations. While, in the earlier studies, either contextual issues, managerial actions, or the process perspective were used as largely independent explanatory tools, we combine and extend them with more constructs into a more comprehensive framework. Thus, whilst recognizing the merits of previous studies, our work expands on them using a longitudinal in-depth case study in order to create a more thorough picture of the post-acquisition IS integration process.

We draw on three perspectives for the analytical framework: the structuralist, the individualist and the interactive process perspectives. These perspectives have previously been used in the IS field to empirically study a similarly complex phenomenon, namely the implementation of software process improvement innovations and the emergence of IS development methods (Kautz 2004; Kautz and Nielsen 2004; Madsen, Kautz et al. 2006). These three perspectives, based on social theories, were described and originally used by Slappendel (1996) to analyze research on innovations in organizations. The framework also has a general relevance, as it addresses the discussion of structure and agency (Giddens 1997) which is one of the major discussions in information systems (See e.g. Rose, Jones et al. 2005).

M&A activities present a dramatic change in a company's life-cycle, and the post-acquisition integration processes create possibilities for organizational innovations. Thus, we find this theoretical lens appropriate for our research, too. The three perspectives facilitate our focusing on the structural characteristics, the actions of individuals belonging to relevant stakeholder groups, as well as on the complex and dynamic interaction between socially constructed structure and purposeful human action over time.

We develop the elements which constitute the three perspectives further, and adapt them to suit the analysis of the post-acquisition IS integration. By doing so, we integrate and complement the contributions of the previous studies on post-acquisition IS integration, and form a coherent framework for understanding what influences the post-acquisition IS integration process and how it is shaped.

From the structuralist perspective, structural characteristics influence and shape post-acquisition IS integration. The perspective is inspired by the view that the M&A situation is case specific (e.g. Granlund 2003). The acquisition context is characterized by issues such as the IS integration strategy selected, the IS/business alignment in the merger, related organizational changes, the role of the IS in the merger, and the distribution of decision making (Merali and McKiernan 1993; McKiernan and Merali 1995; Stylianou, Jeffries et al. 1996; Robbins and Stylianou 1999; Granlund 2003; Wijnhoven, Spil et al. 2006).

Furthermore, the structural characteristics of the existing information systems and their fit, as well as those of the IS integration team as a structural element, affect the organizational implementation of post-acquisition IS integration (Harrell and Higgins 2002). Also, the characteristics of the new, desired information system, such as its complexity, affect the integration through the magnitude of the change required (Harrell and Higgins 2002; Mehta and Hirschheim 2004; Wijnhoven, Spil et al. 2006).

The concepts illustrate the particular post-acquisition IS integration setting, the project under investigation, and allow for an understanding of how certain structural characteristics affect the post-acquisition IS integration. The emphasis lies on descriptive and static characteristics. The structuralist perspective does not address the

impact of the individuals' actions or of the interaction between structure and individual action over time.

The individualist perspective holds that the characteristics and actions of individual stakeholders influence and shape the post-acquisition IS integration process. Previous studies emphasized the relevance of this perspective, inasmuch as Robbins and Stylianou (1999) discovered that managerial factors have a strong influence on integration outcomes, and Granlund (2003) concluded that in his study, the role of dominant individuals was evident.

The previous literature on post-merger IS integration identifies several stakeholders. These include the IS integration project manager (I/S-Analyzer 1989), IS integration team, IS staff (I/S-Analyzer 1989; Cossey 1991; Merali and McKiernan 1993; Stylianou, Jeffries et al. 1996; Robbins and Stylianou 1999; Harrell and Higgins 2002), top management, users (Main and Short 1989; Cossey 1991; Merali and McKiernan 1993; McKiernan and Merali 1995; Stylianou, Jeffries et al. 1996; Robbins and Stylianou 1999; Harrell and Higgins 2002), and in some cases also external consultants (Harrell and Higgins 2002).

Prior post-merger IS integration experience (I/S-Analyzer 1989; Stylianou, Jeffries et al. 1996) can help the managers responsible develop skills that influence and shape their actions when managing this complex process, such as project management, adequate planning (I/S-Analyzer 1989; Merali and McKiernan 1993; McKiernan and Merali 1995; Stylianou, Jeffries et al. 1996; Harrell and Higgins 2002), including devoting sufficient resources to the integration project in terms of time, funds, and personnel (Merali and McKiernan 1993; McKiernan and Merali 1995; Giacomazzi, Panella et al. 1997; Harrell and Higgins 2002; Granlund 2003), as well as resolving conflicts and managing resistance (Harrell and Higgins 2002; Granlund 2003) and the "rumor mill" (I/S-Analyzer 1989). Similarly, the project team and external consultants also need to possess sufficient experience and skills to deal with both technical and business aspects of the IS integration (Harrell and Higgins 2002). Top management's commitment and support (Main and Short 1989; Robbins and Stylianou 1999) affect post-acquisition IS integration, too. Communication to the (end) users (Robbins and Stylianou 1999; Harrell and Higgins 2002), as well as between other stakeholder groups such as the planners and implementers (McKiernan and Merali 1995), has frequently been mentioned as an important issue in post-merger IS integration. This communication includes clarifying both the need for change and the shared vision (Harrell and Higgins 2002). Finally, users' skills to utilize the new system and their resistance to change are relevant issues in post-merger IS integration (Harrell and Higgins 2002).

These concepts allow for an in-depth understanding of the individuals responsible for and involved in the post-acquisition IS integration, and their influence on the process. But the concepts lack a focus on the post-acquisition IS integration as a change process that is inherently social.

The interactive process perspective is based on the assumption that the post-acquisition process comes about over time through the interaction between structural influences, the actions of individuals and the content of change; that is, the post-acquisition IS integration process and the new, (to be) integrated IS.

The M&A phenomena are traditionally seen as a rather straight-forward process (e.g. (Haspeslagh and Jemison 1991), and the IS integration after an acquisition is seen as a process that evolves over time (Merali and McKiernan 1993; McKiernan and Merali 1995; Chin, Brown et al. 2004). A process view on post-merger IS integration has also, more recently, been taken by e.g. Jonston and Yetton (1996), Granlund (2003) and Wijnhoven et al. (2006). Much of this literature views the post-merger IS integration process as a straight-forward exercise with unidirectional causalities. However, Merali & McKiernan (1993) suggest that subsequent acquisitions form an iterative process, and that in order for the organization to reach the full potential of the acquisitions, it must also complete (and iterate) a learning cycle. Granlund (2003), who draws from several theoretical perspectives including Giddens's (1997), suggests that structure and action are inseparable in post-merger management accounting systems integration. The interactive process perspective developed in this study shares that view. Organizational implementation of post-acquisition IS integration is viewed as being perceived subjectively and subject to ongoing reinvention and reconfiguration.

Kautz (2004) and Madsen et al. (2006) chose the concepts of content of change, social context and social process to achieve an understanding of the interactive process of emerging IS development methods. These concepts and the notion of their interaction over time were originally presented by Walsham (1993) for studying change in the context of information systems development and use. The framework presented here follows Walsham (1993) as well as Kautz (2004) and Madsen et al. (2006), and utilizes these concepts.

Content of change refers to how the planned and actual post-acquisition IS integration process and the product of change emerge in interaction with the social context and social process. Relevant issues may include changes in the integration strategy, schedule delays (Granlund 2003), technical difficulties (Merali and McKiernan 1993; McKiernan and Merali 1995), unintended consequences (Granlund 2003) such as the disruption of business operations (Robbins and Stylianou 1999), changing goals and users' needs (Harrell and Higgins 2002), or different outcomes with regard to user satisfaction, ability to exploit merger opportunities, improved IS capability, avoidance of merger problems and IS resource utilization during the integration process (Robbins and Stylianou 1999); (Stylianou, Jeffries et al. 1996). It may be affected by the role of IS as a tool for restructuring and integration (I/S-Analyzer 1989; Merali and McKiernan 1993; McKiernan and Merali 1995; Granlund 2003), the new IS's level of innovation, its impact on business, and the extent to which the outcome of the IS integration project and the integrated system depends on external issues (Harrell and Higgins 2002; Mehta and Hirschheim 2004).

The elements of the social context include social relations between the participants of the IS integration, the social infrastructure, and the history of previous commitments to information systems (Walsham 1993; Madsen, Kautz et al. 2006). In the post-acquisition situation, the social context may be particularly complex because of the various stakeholders with different backgrounds in the merging organizations.

The social process includes the effect from a cultural and a political point of view (Walsham 1993; Kautz 2004; Madsen, Kautz et al. 2006) on post-acquisition IS integration. Several studies (I/S-Analyzer 1989; Weber and Pliskin 1996; Granlund 2003; Chin, Brown et al. 2004) have found that organizational cultures and their conflicts affect post-acquisition IS integration. The lack of a common language (Granlund 2003) adds to these problems. Also political and power structure issues (Merali and McKiernan 1993; McKiernan and Merali 1995; Granlund 2003), including power differentials between the acquirer and the target (Mehta and Hirschheim 2004), play a role in post-acquisition IS integration. Thus, the interactive process perspective builds on and complements the structural and individualist perspectives, facilitating an understanding of the post-acquisition IS integration as a dynamic and complex change process that is embedded in its cultural and political context.

The three perspectives form an analytical structure that is used to organize, describe and analyze the data from the post-acquisition IS integration in the case of PrintComp. Table 1 summarizes the three perspectives and their key concepts that have been elaborated in this section and are employed here to study and understand post-acquisition IS integration.

PERSPECTIVE	KEY COMPONENTS
Structuralist (Structural characteristics)	*Acquisition context; existing information systems; new, desired information systems; and IS integration team* – characteristics hereof influence and shape the post-acquisition IS integration.
Individualist (Individual characteristics and action)	*Prior post-acquisition IS integration experience; post-acquisition IS integration skill; top management commitment; communication, resistance to change* – influence the individuals' actions, which in turn influence the post-acquisition IS integration.
Interactive Process (Structure, action, and their interaction over time)	*Content of change* – the planned and the actual post-acquisition IS integration process emerge in interaction with the social context and social process. *Social context* – social relations, infrastructure and the history of previous procedures, structures and commitments influence and shape the post-acquisition IS integration. *Social process* – cultural, political and power aspects of the merging organizations and IS departments influence the post-acquisition IS integration.

Table 1: The analytical framework

3.   Research Approach

The research presented in this paper is based on a longitudinal case study. Case study research allows in-depth understanding and appreciation of the dynamics present within single settings (Eisenhardt 1989). It is also especially suitable for sparsely explored phenomena and the "how?" type of research questions (Cf. Yin 1984; Eisenhardt 1989). Post-acquisition IS integration is inherently embedded in the overall acquisition context, and a case study is a suitable method for studying context-bound phenomena in cases where the boundaries between the phenomenon and the context are blurred in terms of how they in fact exist in their natural, real-world settings (Yin 1984; Eisenhardt 1989; Lee 1989). Thirdly, a longitudinal in-depth case study facilitates the examination of the case from the different perspectives chosen for this study at the desired level of detail.

Our understanding of post-acquisition IS integration has come through an iterative process of the interpretation, comparison and intertwining of prior research and empirical data. This together with the focus on developing a context-based process-oriented description and explanation of the phenomenon that acknowledges individuals

as actors fits the interpretive epistemological and ontological orientations of this research.

The empirical data for this paper was collected from the IS integration at PrintComp (pseudonym), a manufacturing company that assumed its current form in 1999 when it acquired a plant (Plant P1) from a competitor.

The data for the study are drawn mainly from semi-structured interviews, and were triangulated with an end-user questionnaire. The key informants were chosen in co-operation with the integration project manager. The extent of the group of interviewees adequately covered various actors and management levels involved in the studied IS integration processes; including representatives of top management, the integration project manager, user support, users at different levels and the software vendor. Several interviews were conducted with some key interviewees such as the implementation project manager. The interviews were conducted by the author of this paper listed first. They all lasted between one and one-and-a-half hours. The interview themes covered the four phases of the post-acquisition IS integration: Designing the post-acquisition integration strategy, designing the strategic IS integration plan, designing the execution plan for IS integration, and execution of the IS integration (Alaranta-Parvinen 2005). For each phase, problems, strengths, and success and failure issues were covered. The fifth theme of the interviews was the overall success of the IS integration. In cases where the interviewee felt he or she was not capable of commenting on some of the issues, the particular question was omitted from the interview. In 2003 and 2004, extensive notes were taken during the interviews, and in 2005, when more trust was established, interviews were tape-recorded and transcribed.

The data collected via interviews was triangulated with an end-user questionnaire to "show empathy to all sides" (Stake 1995) and gain a broader view of the phenomenon in question. Hence, the role of the questionnaire in this study was to provide an efficient way to collect the end-users' perceptions and opinions to complement the data from the interviews, and there was no causal model to be tested. The end-user questionnaire was loosely based on the Motwani et al. (2002) framework on change management in ERP implementation, and Saarinen's (1996) instrument for evaluating information system success, choosing and modifying suitable constructs of each of these.

The post-acquisition IS integration took the form of the development of a new information system which was implemented in three phases in three subsequent years in the existing plants and the newly acquired plant. The data collection as summarized in Table 2 was repeated after each implementation and took place throughout the whole period. Further details about the actual IS integration process are provided in Section 4.

	Project milestone	Time of data collection	Data collected
Jan. 1, 2003	Pilot implementation: Plant P1	April 2003	11 interviewees 33 responses to user survey (50%)
Jan. 1, 2004	Implementation in 3 other plants	May 2004	6 interviewees 168 responses to user survey (51%)
Jan. 1, 2005	Implementation in the last plant & follow-up	May-June 2005	7 interviewees 220 responses to user survey (58%)

Table 2. Data collection

The textual data, i.e. the interviews as well as the textual reports created based on the end-user survey, were analyzed with the help of NVivo software. For the purposes of this research, the data from the end-user questionnaire was analyzed and collected into yearly reports. The reports provided the case company not only with the numbers, but also with explanations for them. In the reports, key figures such as average and mode as well as histograms of the responses to each question were produced with SPSS.

The key concepts identified in the literature review for the development of the analytical framework (Table 1) were used in the coding of the empirical data. The data fit the categories well because of the iterative nature of this study: our knowledge concerning the case together with the previous literature on post-merger IS integration informed the crafting of the concepts in Table 1. On the few occasions where the data did not match these nodes, such as the simultaneous changes in the way of doing business, the observations were coded as free nodes. Triangulation across data sources (multiple informants) and across data collection methods (interviews and end-user survey) as well as the constant search for contrasts, negative evidence and unexpected findings served to strengthen the concepts further. This analysis and interpretation carried out node by node finally led to producing the account provided in Section 5. The interview questions and end-user survey questions are presented in the Appendices.

4.   Case Description: Post-Acquisition IS Integration In PrintComp

The empirical data for the research were collected from the post-acquisition IS integration of PrintComp, a European print house that assumed its current form when it acquired a plant (Plant P1) from a competitor. The selected case is interesting for

several reasons: PrintComp chose to pursue a full IS integration to improve control of the production process, better co-ordinate its overall production capacity, and enable better financial reporting. PrintComp grew substantially after acquiring P1, and its profitability has continuously been satisfactory. However, the implementation process has been troublesome, and different problems have been reported in different plants. The sector's business model changed during the IS integration with the unforeseen introduction of mass-customization in digital printing, and furthermore a key customer changed its operations mode which posed new requirements for PrintComp's IS.

In the following, we provide a brief history of the integration project from before its inception in 1999 up to its official close in 2005. In 1998, PrintComp employed approximately 300 people. At that same time, the number of personnel at P1 numbered around 230. The plants PrintComp owned prior to the acquisition were organized on a functional basis. They operated with an integrated, tailor-made IS that imposed a great deal of control on the production process. Production at P1 was organized in terms of processes focused on customer service. P1 used flexible software tailor-made to its needs.

In 1999, PrintComp acquired P1, at which point the company's management concluded that P1 had the more efficient production processes. Hence, they decided to implement those processes in the other plants, too. Their attempts, ongoing from 1999 throughout 2002 – before starting to implement the new integrated IS – proved unsuccessful. In parallel, PrintComp's production function asked for IS integration as soon as the acquisition decision had been made. Since P1's previous owner had not included the continued use of its IS in the deal, PrintComp decided to develop a tailored IS to run P1 alone and appointed a project manager in 1999. A deal was made with a vendor to deliver the software within three years and work to define the requirements for the new information system for P1 was conducted in 1999.

In early 2000, following completion of the definition of the requirements for the new IS for P1, management decided to extend the system's scope to the rest of the company, as they felt that a tailored integrated system would bring strategic competitive advantage. Accordingly, between 2000 and 2002, PrintComp's new IS was developed and in January 2003, as agreed, PrintComp started to implement the new system in P1. The other plants were supposed to implement the software the following year. The new IS consisted of applications for sales, manufacturing, inventory and supply, as well as for cost accounting and financial reporting. However, accounting functions such as accounts receivable and payable, asset accounting, book-keeping as well as human resource management applications were not run in the new, integrated system because PrintComp's parent company administers them centrally.

Utilization commenced at P1 in 2003, but the users were frustrated. The project manager and user support personnel explained that implementation at the pilot site was proving difficult as the software was buggy. Officially, the test period was due to end four months after the implementation. However, due to the poor quality of the system, the test period could not be pronounced finished at that point and some functions had to

be tuned and reprogrammed. The project's official steering committee vanished and conflicts of interest with the vendor became apparent. The project manager deployed the results of a user survey – which demonstrated users' dissatisfaction with the system – in negotiations with the vendor. Nevertheless, the operative functions used the system.

In 2004, the system was implemented in three more plants together with the new work processes. Implementation at a fifth plant had to be delayed due to the insufficient quality of some critical software modules designed for use in that plant alone. Bug fixing continuede. The system was up and supporting operations, and clear benefits such as better control and coordination had been realized. While user satisfaction at P1 improved, though the users continued to be dissatisfied, users at the other plants were frustrated and found it hard simultaneously to change their work processes and start using the new IS. They felt that the work processes and system developed for P1 had been imposed on them; 'us and them' attitudes prevailed.

In 2005, the system was finally in use at all five plants. A newly performed user satisfaction survey showed that satisfaction had widely improved, but over 20% of the respondents still felt that the system was not successful. One interviewee concluded that: "*[A few years ago] we had significantly fewer internal interdependencies and probably now we could not operate with the old system at all. So the new system is indispensable. Today we increasingly use the three different plants for producing one item … but the change, the benefit we got from this change could definitely have been greater.*" In May, the project manager claimed that he only worked part time on the projects and at the end of the year the project as a whole was officially closed; but in practice, the integration work continues.

5. Analysis of the Post-Acquisition IS Integration Process

To analyze the elements and interactions that contributed to the post-acquisition IS integration in more detail, the following three sections emphasize different aspects of the case according to the structuralist, individualist, and interactive process perspectives and their key concepts.

5.1. The structuralist perspective

The starting point for the post-acquisition integration was the acquisition of Plant P1 by PrintComp. This was a 'friendly' acquisition of similar business. The motivation was that in P1 and in P2, a similar plant already owned by PrintComp, the machinery was getting old and heavy investments were required. This would have created significant overcapacity in the market. To enable full organizational integration and synergies in production, top management decided that full information systems integration was necessary. This decision resulted in a good alignment between business and IS. The production manager described the situation as follows: "*… we have congruent*

resources, similar printing machines, and we supply similar products in [P2 in] the Historical City and partly in [P1 in] the Capital City … and of course to manage deliveries and materials, but above all for controlling production."

Management found that acquired plant P1's production processes were more efficient and decided to implement them in all plants, which gave P1 a prominent role in the forthcoming requirements definition. Management also felt a general need to control and coordinate the operations better as well as to harmonize the production processes. This led to vague requirements for the new IS which had to be refined and changed, resulting in an unstable development process.

The acquisition context was also characterized by a business environment that was simultaneously changing in aspects such as the emergence of mass customization of print products, which also resulted in the refinement of requirements and functions and de-stabilized the development process.

A closer look at the old and the new ISs reveals the following: P1's IS had to be substituted as soon as possible, as its previous owner only permitted continued usage for a short period. Therefore, PrintComp decided to develop the new system first for P1 alone. Later, the management chose to extend the new IS to the whole company. Before the acquisition, both P1 and PrintComp used proprietary information systems, tailored to their needs. However, neither of these systems possessed the properties appropriate for the support of the new company, and there were no new software versions available. As mentioned above, the new IS was to harmonize production, enable better control and coordination, and to adapt to a changing business environment. To fit these and other company peculiarities, a tailored system was chosen.

The user interface of the new system was similar to that of PrintComp's previous system, while its functionality was similar to P1's processes. As the users in P1 had employed a more flexible tool, they disliked the new IS. It also had many bugs which frustrated the users further. When the IS was implemented in the other plants, the users there felt that they had to start using "the others'" IS and suspected that it would not support their work.

The project organization comprised a steering committee and a three-member project team with a project manager from PrintComp. Various functional groups were formed for the requirements definition. However, the steering committee was dissolved before the first installations, and also the functional groups disappeared soon after the original requirements were defined and long before the project ended. Thus, the views of the functional groups were not represented properly. There was no IS participation in the acquisition, perhaps because PrintComp did not have a formal IS department or a Chief Information Officer (CIO). The lack of a steering group led to almost no resources being devoted to strategic planning during the project. The fading of the functional groups also caused problems, as the vendor's project manager describes: "*…one should not have let those responsible for the different parts get away because three people*

cannot build an IS like this." The small IS integration team did not have time to test new modules effectively, and erroneous software was implemented.

Table 3 shows which and how structural characteristics influenced and shaped the post-merger IS integration process. The structuralist perspective provides valuable insight into the case study setting, the process under study, and the choice and implementation of the new information system. However, the descriptive characteristics do not in themselves explain why the managers of PrintComp chose the tailored IS and the specific vendor, and why the implementation process was troubled. These issues are examined in more detail from the individualist and interactive process perspectives.

Elements	Characteristics	*Influence on post-merger IS integration process*
Acquisition context *Decision making* *IS/business alignment* *IS integration Strategy* *Organizational changes*	* Management made initial decisions * Management found P1's processes superior * Requirements based on a general need to coordinate & control production better * Simultaneously changing business environment	Fully integrated system Good IS/business alignment P1 had a prominent role in the requirements definition Vague requirements definitions and unstable development Refinement of some functions
Old & New Information systems	* P1 needed a new IS as continued use of old IS was not permitted * P1 & PrintComp used IS tailored to their needs * None of the existing ISs had the necessary properties * The new IS should fit PrintComp's peculiarities * The new IS was erroneous and complex * The user interface resembled PrintComp's old IS, its functionality P1's old IS	The new system was developed first for P1 then extended to the whole company A tailored system was chosen Users in P1 were dissatisfied with the degree of user friendliness Users in all plants felt they had to use 'the others' IS, which would not support their work
IS integration team	* Small IS integration team * No IS department or CIO * Steering committee dissolved quickly * Functional groups dissolved early	No proper testing No IS participation in the merger planning The functional groups' views were not represented properly

Table 3: The structuralist perspective

5.2. The individualist perspective

Turning to a view of the different stakeholders as individuals, not as structural elements, uncovers the fact that no top manger showed, despite other claims, particular commitment. They provided only very limited human resources and no other support for the project team. The user survey showed that the users were unaware of the top management's degree of involvement. Furthermore, the steering committee already dissolved before the installation of the system. The vendor's project manager recalled: " *…The top management is not involved in this project … support for their people, we have not seen that at all. So [the Project Manager] has been leading this project alone from the customer's side. And this is not how it should be.*"

The company's chief financial officer (CFO) was an exception and deserves a little more attention. He had experience from a smaller-scale acquisition. He had an overall strategic vision of the IS needed and a positive attitude towards state-of-the-art IT; but he possessed no specific IS planning skills. As such, he pushed IS as an enabler for the overall organizational change, communicated his positive attitude, which helped to remove 'us and them' feelings in the different plants at the management and company level, and he heavily influenced the decision to opt for a tailored solution. But, he could not compensate for the project manager and the production manager, who, both from P1, did not have significant experience of large IS projects or any M&A experience and a clear vision of post-acquisition integration. This contributed to the problem of vague requirements definitions and equally vague system functions, and resulted in the use of inefficient policies when choosing the new IS, and resource and scope problems when IS integration was extended from a new system for P1 to a new system for the whole company.

The managers' inadequate understanding of the complexities of implementing an IS in a large organization led to poor managerial actions at the beginning of the process, such as the decision to implement all modules simultaneously and over-optimism which aggravated schedule problems. Also due to the estimation errors, insufficient personnel were devoted to the project, which led to implementing poorly tested and erroneous software. This, as confirmed by the vendor's project manager, was however also due to a poor understanding of the system by the vendor's representatives. Management also neglected some of the different plants' needs. This initially led to the users feeling that they had to use other plants' IS that was erroneous and did not correspond to their needs. They therefore complained heavily about the system and did not use one of the modules, the pricing module, at all.

Overall, the users were dissatisfied with the quality of change management. They also felt that they did not have enough skills when the system went live, and that they needed more training. They lacked an understanding of why it was important to key in the information carefully and saw it just as an extra chore.

This brings us to communication issues. Communication was meant to be open, but it was not effective, and there was very little two-way communication between the users

and the project team. Communication within the project team was efficient and the team functioned well. However, the CFO preferred receiving information from the project manager, thus management support was invisible to the team and the users. The project manager claimed that he was initially too occupied with technical problems to have time to inform the users of the project's progress. This frustrated the users as they got no response to their complaints and concerns. However, the project manager later prioritized communication and the users were able to get help from project user support staff. This was highly appreciated and supported the eventual acceptance of the system.

Table 4 provides an overview of how the individual managers' and users' skills and communication preferences influenced and shaped the post-acquisition IS integration process of PrintComp.

Elements	Characteristics	Influence on post-merger IS integration process
Top management commitment	* No commitment in general	No support for the project team Insufficient human resources
Prior post-acquisition IS integration experience; Post-acquisition IS integration skills	* CFO had experience from smaller acquisition, an overall strategic vision of IS & a positive attitude towards IT but no specific IS planning skills * Project manager had no M&A experience, post-acquisition IS integration experience, experience from large IS projects nor significant IS planning skills * Vendor project manager & representatives had a poor understanding of the needs of PrintComp * Users lacked skills and understanding of the importance of the new IS	IS as enabler of the change process Purchase of a tailored IS Removal of "us and them" feelings at management and company level Simultaneous implementation of processes & IS Inefficient project & change management Inefficient requirements definition Inefficient policies to choose the IS Poor handling of 'us and them' attitudes related to the new IS; Users felt they had to use other plants' IS Users felt that IS did not fulfil their needs Problems with testing Problems with system quality Schedule delays Lack of human resources Insufficient user training Opposition in the form of complaints Resistance to using one module
Communication	* CFO preferred receiving information from project manager only * Project manager e-mailed with the project team; at first had no time to inform users * Project manager & staff communicated help to users	Top management support invisible to the project team and users Efficient communication within the team Users became frustrated Users lacked understanding of the new IS Support staff help was appreciated Increased acceptance of the system

Table 4: The individualist perspective

5.3. The interactive process perspective

Prior to the IS implementation, the new work processes based on P1 were planned to be transferred to the other plants; this however failed and the new IS was used as a vehicle for organizational change, and the changed process was finally successfully implemented together with the IS. The new IS itself had been planned as a solution to support effective production and coordination. It materialized as a tailored system based on P1's work processes and the interface of PrintComp's previous system. It was initially criticized by all the parties involved, but eventually accepted by everyone.

The plan had been to develop and implement the system first only in P1. However, the project's scope, budget and schedule were already extended during the development for P1 to comprise the whole company. The phased implementation with P1 as a pilot led to opposition in P1 where the new interface was considered inflexible, and in the other plants where the work processes and functionality were disliked. Together, these led to implementing initially erroneous software and a fair degree of redevelopment, and the implementation of the system in one plant (P5) had to be postponed for a year; but in the end, management's goals concerning more effective planning, coordination, control and reporting were all realized.

Using the background imparted by the structuralist and the individualist perspectives, this content of change can be further explained by the social context and process. The selection of the vendor to develop a tailored IS demonstrates the interdependence of the elements of the social context and process.

PrintComp's previous system had been purchased from a domestic vendor, thus a social relationship had developed, the vendor was known to management and favoured by the CFO, and he had the power of decision over the choice of vendor as well as to opt for a tailored solution.

The employees in the different plants were used to different types of systems. Thus, the history explains why the users in P1 - who were acquainted with the system's functionality - and the users in the other plants were equally displeased with the system. The former criticized the systems' interface as 'antique and complex', the latter acquainted with the interface felt that they had to use 'the others' system.

The social infrastructure of the IS integration was characterized by several pairs of antagonists and relationships, which were new and detached resulting in formal and distant communication. Beyond the communication problems between the project manager, the project team and the users, in particular the relationship between the plants led to tension and frustration among all users and to frequently changing requirements. These also affected the relationship between PrintComp's Project Manager and the vendor. He used the yearly user survey to show the users' dissatisfaction with the product in the sometimes tense negotiations. Later, they agreed on a development process which professionalized the handling of repairing the bugs and also the company's recurrently emerging changes of requirements. When these were formally

archived in a database, vendor communication improved and resulted in an acceptable system.

Finally, top management – having made the initial decisions – largely withdrew from the project, leaving it, as noted, to an inexperienced project leader. However, having no social relationship with this leader or the other project members resulted in management not providing any further support. The only tighter social relationships existed between the project manager and the two user support persons. Their collective effort contributed to the final acceptance of the system by the users.

Power struggles between PrintComp and P1 appeared at the operational level. Before the IS integration, both parties had their own system of naming production lots. When defining the requirements for the new IS, a dispute arose on which system should be followed. In the end, a compromise was found. Solving these problems was time consuming, but helped the plants to find a shared language and common, agreed-upon work routines.

The absence of top management led to another power issue: the project manager and the project team did not have enough power over the users in the plants. The users' refusal to employ the pricing module may be related to this. The lack of power contributed also to another problem, described by the vendor's project manager: "*... the responsibility shifted to the end-users, and they ... are not satisfied with the software. ...nothing will come out of it if 500 end-users get to say in what way each of them would like some feature to function. So it must be the project team that bears the responsibility. This has been the problem here.*" In practice, this translated into constant requirement changes during the implementation, which in turn created tensions with the vendor. The limited power of the project manager might also have been the reason why no new staff was hired when a key member left the integration team for several months.

The political and cultural rivalry of the cities in which the plants were located also contributed to the explanations of the problems that accompanied the integration. The competition between the cities is usually expressed through ironic humour and that was also the case here, especially with P1 located in the actual and the other plants in the former capital of the country. Mutual resentment and doubts were expressed this way and led in particular after the pilot phase to aggravated 'us and them' attitudes.

The problems decreased as the users became better informed, learned to use the new IS, the errors were fixed, and users got used to the system. The last end-user survey in 2005 showed that the users were clearly more satisfied with the new IS than they had been in the two years before.

Table 5 presents the influence of social context, social process, and content of change, on the post-acquisition integration process.

Elements	Characteristics	Influence on post-merger IS integration process
Content of Change		
New IS & Work processes	*Planned:* * Transfer of work processes from P1 to other plants before implementation of new IS * Development of an effective production planning, coordination & control IS * Development & Implementation of a new IS with P1 as pilot and later for the other plants * Development of a common IS for the whole company	*Materialized:* New IS used as a vehicle for organizational change Process change implemented together with new IS A tailored solution Initially criticized by all parties involved Eventually accepted by everyone Project scope, budget & schedule early extended to cover the whole company Opposition and frustration in all plants Implementation in Plant P5 postponed Initially erroneous software Redevelopment Realized management's goals
Social Context		
History	* Previous system purchased from domestic vendor * Different types of previous systems	Selection of the same vendor Opting for tailored system P1 users acquainted with functionality criticized interface as 'antique & complex' Other users acquainted with the interface felt they had to use 'the others' system
Social Infra-structure	* Pairs of antagonists: project manager, project team & users P1 & other plants PrintComp & vendor	Communication problems Tension and frustration Frequent requirements changes
Social Relations	* Management (CFO) favoured known domestic vendor	Selection of vendor & tailored IS Distant & formal communication Improved communication & relationship

	* New & detached relationships	No concrete management support
	* Tense relation between the project manager and the vendor, later a database for handling repairing the bugs -> improved communication	System acceptance
	Appropriate communication support with vendor	
	* Withdrawn top management	
	* Close relation of project manager & team	
Social Process		
Politics	* CFO had power to opt for known domestic vendor	Selection of vendor & tailored IS
		Disagreement in design process
	* Operational level power issues during design of the IS	Time consuming solution
		Shared language & agreed work routines
	* Project manager had only limited power	Users' refusal to use a system module
		Frequent requirements changes
		Tensions with vendor
		Limited resources
Culture	* Rivalry of the cities of plants' locations; different processes and procedures	Aggravated 'us and them' attitudes after pilot

Table 5: The interactive process perspective

6. Discussion

On first inspection, the post-acquisition IS integration in PrintComp could be seen as an organizational implementation of a production control IS in a multi-unit environment, with the M&A context having no or very little effect on the situation. In practice, this was not the case. For the purposes of this study, we have elaborated the concepts of a 3-dimensional framework (presented by Kautz 2004; Kautz and Nielsen 2004; Madsen, Kautz et al. 2006; Slappendel 1996) to fit post-acquisition IS integration.

The application of the analytical framework led to a deep appreciation of the PrintComp case where first the structural characteristics of the acquisition situation helped to explain the strategic choices (whether to integrate, what to integrate, choosing the new IS). This result is in line with earlier work by Giacomazzi et al. (1997) who explain the

choice of IS integration strategy (from no integration to full integration) by structural factors including, among others, the motivation for the merger and the related organizational integration. In the case of PrintComp, the acquisition context imposes several requirements on the IS integration. First, the purpose of the acquisition was to prevent over-capacity in the market by acquiring a plant from a competitor and thereafter seeking synergies in production. This led to the need for a deep integration of the production processes and for a fully integrated IS. Our analytical framework also addresses the decisions on what to integrate and on choosing a new IS. The acquisition situation obligated PrintComp to change its information systems, as the previous owner of the acquired plant would not permit the continued use of the information systems in place. Furthermore, the acquisition situation also pushed PrintComp to develop its information systems, as the acquisition brought with it new ways of operating, including the need to coordinate production and production capacity between several plants. On the other hand, the acquisition context provided PrintComp with an opportunity to improve its IS capacity as best practices in previous information systems were sought. This shows that the structural characteristics of the acquisition situation clearly have an effect on the post-acquisition integration that follows.

Furthermore, our framework also takes into account structural characteristics of the old and new information systems as well as the IS integration team responsible for the post-acquisition integration. Prior to the acquisition, the different plants had been using different information systems and different ways of operating. The operations mode was adopted from the acquired plant and the style of IS that imposed more control and coordination was brought from the other plants. This resulted in all users initially feeling that they had to start using "the others' IS", i.e. the "us and them" feelings frequently encountered in M&A situations. Finally, the structural characteristics of the IS integration team also affected the post-acquisition IS integration processes in PrintComp. The small size of the integration team and the fact that the steering committee vanished led to inefficient managerial actions, and the dissolution of the functional groups led to insufficient representation of their needs in the requirements definition.

The individualist perspective sheds more light on why the implementation phase took the shape it did. The repertoire of prior knowledge on acquisitions and post-acquisition IS integration on the part of the individual managers responsible, together with top management commitment, communication preferences and user resistance, helped to explain the strategic choices and the actions of the various stakeholders during the implementation.

The two key managers of the post-acquisition IS integration at PrintComp were the Project Manager and the CFO. This finding is in concordance with Granlund (2003), who concludes that in his study the role of dominant individuals is evident. The CFO's and Project Manager's post-acquisition IS integration experience and skills affected the shape the process took. For example, the CFO's positive attitude to state-of-the-art IS led to choosing a tailored IS, and his sharing of previous experience of a smaller-scale acquisition led to the removal of the "us and them" attitudes at company level. On the

other hand, the Project Manager's lack of experience from prior post-acquisition IS integration or larger-scale IS projects led to inefficient change and project management policies. However, his learning resulted in more efficient approaches in latter phases, including the decision to postpone implementation in P5 in order to ensure a successful implementation. In addition to the input of these two managers, top management's commitment also played a role in the post-acquisition IS integration process. The lack of visible and active top-management commitment led to problems such as not devoting enough human resources to the project and the end-users' lack of understanding of the importance of the new IS. This is in concordance with Robbins and Stylianou (1999), in that managerial factors have a strong influence on positive post-merger IS integration outcomes, and the framework applied in this study provides deeper insights into this issue.

The third and fourth components of the individualist perspective, namely communication and resistance to change, also contribute to explaining how the post-acquisition IS integration process evolved at PrintComp. The positive effect of the CFO's communication of his previous experience has been described above, while the ineffective communication between the CFO, the Project Manager and the end-users led to problems such as the invisibility of top management support for the end-users, and to frustrated users. The end-users in all plants felt they had to start to use "the others' IS" and opposed it actively through complaints; the pricing module simply was not used. On the other hand, communication within the project team was efficient. However, resistance diminished as the bugs were fixed and the users became accustomed to and learned to use the new IS.

The interactive process perspective complements the insights provided by the structuralist and the individualist perspectives by identifying the idea that the post-acquisition process evolves over time through the interaction between structural influences, the actions of individuals and the content of change, that is, the post-acquisition IS integration process and the new, integrated IS. Applying this perspective showed that as Granlund (2003) suggests, structure and action are inseparable in the process of post-acquisition IS integration, and it also showed how. The perspective draws attention to the social context, the social process and the content of change.

Focusing on the social context explains the roles that history, the social infrastructure and social relations play in the post-acquisition IS integration processes at PrintComp. Due to the recent acquisition, the social context was in a state of turmoil, which resulted in "us and them" attitudes, criticism of the new IS, tensions and frustrations, as well as inefficient cooperation between different organizational levels. This further emphasizes that the social context has a significant effect on IS implementation and integration. Studying the social process reveals how the issues related to politics and culture shape the post-acquisition IS integration process and the resulting new IS. Several political and power issues and their interplay were observed which was also found in previous literature, but primarily as separate factors (Merali and McKiernan 1993; McKiernan and Merali 1995; Granlund 2003; Mehta and Hirschheim 2004). In the case of PrintComp, the Project Manager came from the acquired plant and had restricted power.

He was not always able to control the use and the users of the new IS in the other plants and had only limited resources, as illustrated by the departure of a key user support person, who was not replaced, and by the inadequate resources for testing the software. The framework applied in this study enabled the observation that negotiating with the vendor was a political issue. This had not been described in the previous literature.

Cultural differences played a role in the post-acquisition IS integration of PrintComp as earlier reported by (I/S-Analyzer 1989; Weber and Pliskin 1996; Granlund 2003; Chin, Brown et al. 2004). There were differences in the quantity of control coordination versus flexibility and freedom in the use of the previous information systems, and there was the jocular juxtaposition of the cities where plants P1 and P2 are located. These differences aggravated the "us and them" attitudes at the beginning.

The final concept of the interactive process perspective, the content of change, focuses on identifying the structural elements and influential actors that played a major role in how the planned post-acquisition IS integration process and the new, integrated IS evolved into the shape they finally took. Initially, the plan was to develop a new IS for the acquired plant only. This plan evolved into one of acquiring a new IS for the whole company and, furthermore, resulted in PrintComp ultimately implementing buggy software that did not totally correspond to the needs described by the users but nevertheless helped to realize top management's desires for better control and coordination. As for the implementation, the new IS finally enabled the desired organizational changes, too. On the other hand, the implementation was troubled by users' resistance and frustrations, and the implementation in one plant (P5) had to be postponed by one year.

The application of the theoretical framework to the post-acquisition IS integration of PrintComp shows clearly that, in practice, post-acquisition IS integration is a complex and messy process as opposed to the rather straight-forward process view taken by some authors e.g. (Haspeslagh and Jemison 1991; Chin, Brown et al. 2004). The three perspectives – the structuralist, the individualist and the interactive process perspective – offer different types of insights that complement rather than exclude each other, thereby allowing an in-depth description and understanding of what influences the post-acquisition IS integration process and how it is shaped. The analytical framework is informed by both theory and practice for understanding post-acquisition IS integration. In the post-merger IS integration literature, a strong emphasis lies on the contextual issues (see Merali and McKiernan 1993, McKiernan and Merali 1995, Weber and Pliskin 1996, Main and Short 1989, Giacomazzi et al. 1997, Wijnhoven et al. 2006, Stylianou et al. 1996, Robbins and Stylianou 1999, Johnston and Yetton 1996), and the importance of managerial actions is recognized in some studies (Stylianou et al. 1996, Robbins and Stylianou 1999) but has not been studied profoundly. Finally, some studies (Granlund 2003, Wijnhoven et al. 2006) take a process perspective. While not denying the merits of the previous studies, this work builds on, integrates, complements and deepens their findings through an in-depth case study in order to create a more comprehensive picture of the post-acquisition IS integration process. As a result, a more comprehensive framework with a greater number of constructs is provided in the

present study. The analytical framework's ultimate strength lies in the way in which it facilitates a focus on the complexity of relations that in the existing literature are often viewed as much more simplistic. Much of the post-merger IS integration literature can be described as factor research (examples include e.g. Stylianou, Jeffries et al. 1996; Giacomazzi, Panella et al. 1997; Robbins and Stylianou 1999) and it neglects the interactive process perspective even if it does emphasize the importance of managerial actions. For the researcher, the analytical framework can be used to perform, analyze, present and compare longitudinal case studies on how the post-acquisition integration process evolves in practice and over time. While more empirical work will be needed to elaborate, verify and further develop the framework, it presents an extension of the existing post-acquisition IS integration literature and is a promising starting point.

The framework developed in this paper also has practical applicability as, first, the concepts proposed are intimately related to actual post-acquisition IS integration practice as they are derived from such a process. Secondly, the analytical framework covers not only the IS integration process but also the context, relevant actors and the content of change, which makes the framework sufficiently general for application to a range of situations around the post-acquisition IS integration processes. Thirdly, it can serve as a basis from which practitioners can plan and execute actual post-acquisition IS integration with a better understanding of the integration's complexities and dynamics; practitioners may as a result be less likely to underestimate complexities and problems and hence reduce uncertainty and risk of failure. The framework achieves this by providing practitioners with an understanding of the relevant issues related to the context, and the stakeholders and their interaction in the change process evolving over time, and should therefore provide some useful guidance. In short, the framework can be used, first, for planning the unique and case-specific post-acquisition IS integration through the anticipation of potential opportunities and obstacles, which structural characteristics, individual managers and the interactive process might represent in the given situation; and second, in coping with the interactive process during the integration; finally, for post hoc reflection and collection of lessons learned.

7.   Conclusion

This study has extended the existing body of knowledge by presenting a detailed case description and a framework that is a step towards an integrated theory of post-acquisition IS integration. However, the application of the analytical framework has not been entirely unproblematic. It has been a complex matter to determine what falls into each of the perspectives and to decide on clear-cut distinctions between certain concepts, such as between the business, organizational and social context and social infrastructure; between manager characteristics and their repertoire of skills and communication preferences; and between social context and social process. It also required careful thought on how to include issues that were not initially emphasized by the framework, such as the simultaneous changes in the business environment and the Project Managers' developing experience and learning that resulted in better post-acquisition IS integration management skills. Yet, as pointed out by (Madsen, Kautz et

al. 2006) the emphasis lies on understanding the interplay and influence of structures, activities, and events; and hence, such difficulties seem less significant.

Empirical validation and elaboration of the concepts proposed in this paper are needed in other settings, as the framework was created and examined based on only one case site, albeit in depth. More empirical grounding and comparison with other cases' unique and situated characteristics will sharpen and enrich the concepts developed here and yield a more complex understanding of post-acquisition IS integration. Two initial strategies for further studies can be proposed.

First, some of the concepts that proved to be problematic to apply may need to be elaborated or refined. While the distinctions employed were adequate for this study, it is possible that future empirical work will require combining, further dividing or otherwise redefining these concepts. Secondly, it would be beneficial to examine different contexts where post-acquisition IS integration processes take place. The case study here represents only one acquisition situation with certain organizational settings. More post-acquisition IS integration processes need to be studied to see whether the proposed framework and concepts are relevant in e.g. situations where the merger objectives and IS integration needs are different, the units to be integrated are located in different countries, the organization has significant previous acquisition experience, etc. In this way, the analytical generalization suggested here – that other organizations' experiences of post-acquisition IS integration under similar conditions will resemble the patterns detailed in this paper – could be tested and elaborated.

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APPENDIX A - Examples of interview questions

Semi-structured theme interviews were conducted. The interviews were conducted in the mother tongue of the interviewees (i.e. not English). Among others, the interview themes included:

- Integration strategy
  - What integration strategy was chosen? (Full consolidation vs. partial integration vs. no integration; details) Why?
  - How were these decisions made? (Who, when, etc.)
- Executing the integration strategy
  - How was it executed? (When was it integrated, who managed the integration, all at once vs. phased, how were the users taken in account etc.) Why?
  - How were these decisions made? (Who made them, who participated, when, what changes occurred, etc?)
  - What has been difficult? What problems have been experienced? (How did you get over / cope with these problems, why, etc?)
  - What opportunities appeared? (How were they exploited? Why? etc.)
- Success
  - How would you define success in this IS integration? Why?
  - To what extent were these success objects reached? Why?
  - How is this related to the overall integration success at the level of the whole organization? (goals & reaching them?)

APPENDIX B – End-user survey

BACKGROUND INFORMATION

Factory:

F1   F2   F3   F4   F5

Position and Context of IS use:

Sales

Customer Service Clerk

Supervisor/line manager/production

Accounting/finance

End-user (I use the IS mainly for printing out work orders and reporting work/machine time)

	Totally agree	Agree	Neutral	Disagree	Totally disagree	Don't know
I received enough training for using the new IS						
I need more training						
My skills were sufficient when the new IS was installed						
I participated sufficiently in defining the requirements						

The attitude of user support is good						
The relationship with user support is good						
The communication with user support is good						
The quality of user support is good						
The attitude of the vendor's personnel is good						
The relationship with the vendor's personnel is good						
The communication with the vendor's personnel is good						

The IS is used successfully.						

In the future, I get changes in or increments to the IS flexibly						

In the future, I get completely new functions for the IS flexibly						

The data in the IS are accurate (not e.g. round-ups or estimations)						
The data in the IS are error-free						
The data in the IS are reliable						

The IS has all the data I need						
I find the information relevant to and necessary for my work in the IS						
Irrelevant data disturbs the use of the IS						
The data in the IS are available at the right time						
The data in the IS are up-to-date						

The format of the data is good						
The user interface is clear and logical						
The information is clear and understandable						
The IS functions and its quality is good						

The IS is well-suited to performing the tasks of my unit						
The IS is better suited to performing the tasks of other units						
The way of using the IS and the logic of the IS are well-suited to my unit						
The way of using the IS and the logic of the IS are better suited to units other than mine						

The communication related to the implementation of the IS has been open						
I have received information on the implementation effectively.						

I received information related to the implementation notably by e-mail						
I received information related to the implementation remarkably from an Intranet, a database or other electronic source (documents etc.)						

During the implementation, I received information or help remarkably from other departments using the IS (excluding the IT department, trainers and user support).						
During the implementation, I gave information to be used in other departments or advised the employees of other departments remarkably.						
During the implementation, I collected information in a database (or other similar						

repository) remarkably to be used in other departments or other factories.						

The top management (of the whole company) is committed to the change.						
The top management (of each individual factory) is committed to the change.						
The line management (/supervisor) is committed to the change.						
The employees are committed to the change.						
When the new IS was implemented, I understood why it is important to [the case company].						
I know what the new IS aims at.						

The problems and issues I raised were reacted to well.						
In the management of the implementation, the particular needs of my unit were taken in account well (e.g. in the quantity and quality of communication, training, etc.)						
The implementation of the new IS and the related changes were well managed.						

What are the two most important issues that you would like to change in the IS or its use?

1._____
2._____

Other issues related to the IS, its use, implementation, etc.? (You may continue on the other side of the paper)

_____

THANK YOU FOR YOUR REPLY!

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