

DELFT UNIVERSITY OF TECHNOLOGY

MSC THESIS

The Role of IT in Post-Merger Integration
An exploratory study of two cases in the transport industry

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Abstract

Purpose - Mergers & acquisitions (M&As) have become a common way to rapidly acquire skills, assets and/or market share in today's business environment. After a deal is signed, integration processes in the post-merger phase often serve to realize the expected benefits from the M&A. Since IT is increasingly intertwined with the way that firms conduct their business, it is observed that more and more synergies depend on the successful integration of enterprise-wide information systems. The objective of this research is to increase our understanding of how business and IT reciprocate during post-merger integration (PMI) processes.

Design/methodology/approach - Findings are based on an exploratory case study of two horizontal mergers in the transport sector. An adapted qualitative research approach from Miles and Huberman (1994) has been used for data analysis and drawing conclusions. A conceptual model based on scientific literature was constructed in order to assess 29 readily transcribed interviews with managers who have been involved in post-merger integration. The post-merger phase was modelled as a business integration and an IT integration that run in parallel, and both include manageable PMI factors and observable PMI effects. In two consecutive rounds of data coding the model has been adapted in order to draw relevant conclusions.

Findings - The research has revealed a number of complex interaction effects through which business and IT influence each other during post-merger integration. Business and IT are so strongly interlinked in PMI that it does not make sense to consider them in isolation. Business processes have been identified as an area through which the business integration and IT integration are interlinked. The concept of process integration level has been introduced to explain tenacious implementation issues that have occurred in both the case studies. The process integration level proposes an approach to post-merger integration from a process perspective in considering the desired level to which processes in the new organization should amalgamate, which subsequently have implications on the business and IT integration levels.

Limitations/implications - This research explains the reciprocation between business and IT in post-merger integration for the two cases that have been considered. A number of limitations are inherent to the limited number of cases studied. Although findings have been validated by literature review, they have only been applied to M&A cases of horizontal, similar-sized firms in the transport sector. Future research should aim to extend this reach and increase the external validity of the proposed concepts.

Originality - This research has highlighted a number of complex interactions between business and IT in a post-merger situation. It is pointed out how IT is used as an instrument for change in arriving at a desired business integration level, and an perspective is provided on how to avoid the undesired issues that can arise. This research is unique in the way how it proposes to consider the business processes of the new organization to explain the role of IT in post-merger integration. Findings are relevant to both scholars in the field of information systems integration in M&A, as well as practitioners who are facing a post-merger integration.

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Many thanks goes out to my daily supervisor Jacco Schonewille for being a great discussion partner (which is not limited to the content of the research). Along the way, I think there have been quite some radical changes in the way that we both looked at the research and how we could model all of these M&A complexities. Without Jacco's continuous critical view on things I would have probably not been able to arrive at the conclusions presented in this report. I would like to thank Prof. Harry Bouwman for forcing me to keep thinking in scientific terms, and not to reinvent the wheel with made up terminology. Furthermore, thanks for putting time pressure on some of the deliverables. It might have taken some extra time without it. Thank you dr. Victor Scholten for your valuable comments on my work. It really helped me to stay down to earth, and not go floating about in the universe of vague terminology.

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Chapter 1

Introduction

Mergers & acquisitions (M&A), situations in which two firms fuse to one, have become a common phenomenon in today's business environment. For some firms it has proven a successful corporate strategy, since an M&A can be a shortcut to acquire resources, brands, market power and/or new technologies. Worldwide, M&A deals have seen a steady increase of total value the last few decades, only being slightly curbed by the impact of the 2008 economic crisis. Numbers on M&A performance however, have demonstrated that the majority of the deals fail to achieve the promising synergies that were expected by management. Apart from uncontrollable factors such as the economic environment and competitor behavior, it is widely accepted and confirmed that the main reasons for these failures are related to the difficulties in the integration of the two firms.

Integration takes place after an M&A deal has been signed, hence the term post-merger integration. It can cover many of the organizational levels and has the purpose of harmonizing activities within an organization. Integration efforts are recognized as the most important mechanism by which synergistic potential is being turned into beneficial effects of an M&A. Many authors have agreed that a failed post-merger integration can cause an entire M&A to fail to meet its goals.

One of the results of an M&A is that an organization is faced with redundant information systems, which is generally inefficient and may hinder a firm to produce expected synergies. Taking into consideration the role that information technology (IT) has in firms today, it can be argued that one of the most important aspects of the integration is the integration of information systems (IS). The new organization therefore has to decide on an IS integration strategy. It is assumed that failing to integrate IS can indeed lead to not achieving the previously expected goals. Business executives have been quoted saying that the entire M&A has failed due to problems with IT integration. It are statements like these that motivate this research.

Despite the wealth of research conducted into the success or failure of M&As, it seems as if the scientific community is only recently beginning to recognize the crucial role of that IT plays in postmerger integration. Although IT has been considered in scientific literature on postmerger integration for some time now (Stylianou et al., 1996), there is still a lack of scientific evidence and understanding of the impact that an IT integration has on the performance of an

M&A on the one hand, and the impact that the post-M&A context has on performance of the IT integration on the other. The ways in which IT integration plays a role during post-merger integration remain complex and hard to grasp.

Post-merger integration is identified as a situation in which both business and IT related aspects play an important role in determining the performance of the total M&A. The purpose of this research is to clarify how these two separate fields, business and IT, impact each other during the post-merger integration.

This research addresses a gap in the literature and attempts to increase our understanding of the reciprocation of business and IT in the context of post-merger integration. A literature review into the fields of M&A and IT integration aims to create a conceptual understanding of the reciprocation. Additionally, this research builds on qualitative data from two case studies in the transport industry to explore and develop the theoretical findings.

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1.1 Problem statement

Experience in working in IT departments within firms contributes to the idea that business and IT are often perceived and managed as two isolated disciplines. IT staff is generally interested in - and enthusiastic about technology and how it influences the world around us. They are aware of the possibilities and functionalities of the information systems, and therefore how it should be used. In some cases, IT staff is therefore better capable of understanding the underlying business processes than do the business people who actually work with the system. In contrast, business staff generally don't know much about technology. In most cases they perceive an IT system as a giant black box which can do many things that they feel they will never be able to understand. They assume that the system will always behave as they intend it to, and they feel let down if it doesn't. The only time that they really think about IT, is when technical problems arise and they cannot proceed with their activities. In that case, IT is often blamed for causing these problems and they are never quick enough to respond.

In the most broadest sense, this relationship between business and IT within an organization is the topic of this thesis. The post-merger situation is a unique context in which business and IT must come together and integrate to some extent. In an attempt to better understand how business and IT can impact each other, we investigate their reciprocation in the postmerger integration activities. M&As have indeed proven to be situations in which business and IT both play a crucial role in making the merger work. Nevertheless, the fierce isolation between the departments still exists in a postmerger situation. Some quotes from scientific literature underline this premise, such as:

"Unfortunately, the IS area is often treated as a 'second class citizen' in merger and acquisition activities." (Stylianou et al., 1996)

"Currently, business professionals tend to completely ignore IS integration

tasks in the planning of the M&A.” (Henningsson, 2007)

“[...] executives from IT and operations often aren’t included in the due-diligence process, preventing them from offering valuable input on the costs and practical realities of the integration.” (Sarrazin and West, 2011)

“Despite the demonstrated importance and risk of neglecting IS integration in the M&A process, investigations show that IS questions normally receive noticeably little attention in practice.” (Henningsson and Carlsson, 2011)

If it is true that in a merger & acquisition situation the IT area is treated so unimportantly, then why is it that executives can fully blame a failed IT integration for not achieving the expected synergies from a merger? A universal problem with these types of statements from literature is that it is hard to measure such business/IT relationships and hard to quantify the effects of IT. This research however will attempt to contribute to this understanding of business and IT aspects of post-merger IT integration.

1.2 Research objectives

The objective of this research is to increase our understanding of the role of IT in the post-merger context. We attempt to explore in what way the integration of information systems impacts the business integration that runs parallel, how the IT integration is influenced by business side of the merger, and how both the business integration and IT integration lead to the success or failure of the M&A. It can be argued that there exists a complex relationship between business and IT in any post-merger integration and this research aims to explore this relationship. The situation sketched in the problem statement links to the motivation for this research. It is observed that the impact of IT in a post-merger integration is too often overlooked, and that IT is not given the attention that it deserves when considering the potential impact on the total M&A performance.

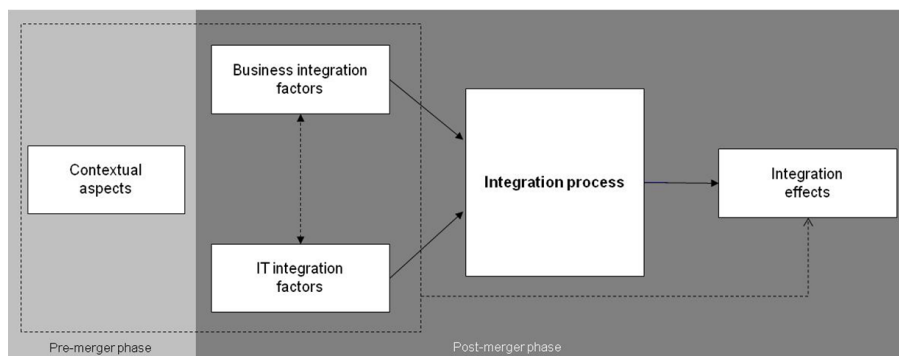


Figure 1.1: Factors/effects model by Schonewille and Bouwman (2010) to show business related and IT related impact on integration activities in the post-merger integration phase

An existing framework is used as a starting point to further explore the research objectives. Schonewille and Bouwman proposed a factors/effects model (see Figure 1.1) in order to grasp the complexities that occur in post-merger integration processes. This model includes *business integration factors* and *IT integration factors* that have an impact on the *post-merger integration process*, and *integration effects* that result from the integration process. The arrows in Figure 1.1 represent hypothetical relationships of which the presence has been verified in Schonewille and Bouwman (2010). However, the type of relationships and the extent to which they play a role in post-merger integration are yet to be determined. This research will therefore extend the concepts of the *factors* and *effects* and will further elaborate on the relationships that are present between them.

For this purpose the concepts from Schonewille and Bouwman (2010) have been combined into an adapted version of the factor/effect model, which is shown in Figure 1.2. Minor adaptations have been made to fit the research approach: in this model the distinction between business integration and IT integration has been made explicit, and the integration effects from Figure 1.1 have been separated to account for business and IT related effects. Furthermore, to increase consistency across the research model the terminology has been slightly changed while the initial concepts have been preserved. Note that in the model of Figure 1.1 the pre-merger phase was also included in order to assess the *contextual aspects* that impact an integration. For this research on factors and effects, the pre-merger phase will be outside of the scope; here the focus will be mainly on integration in the post-merger phase.

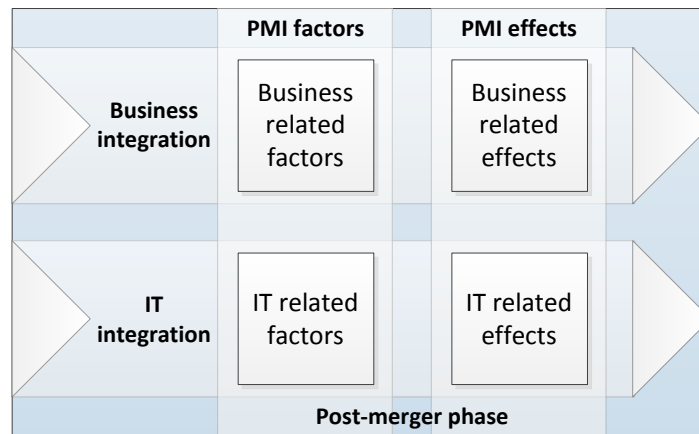


Figure 1.2: Adapted version of the factor/effect model from Schonewille and Bouwman (2010) to distinguish between the business integration and the IT integration, and facilitate research into relationships between factors and effects

Schonewille and Bouwman (2010) identify seven *process factors* from scientific literature. Process factors have been defined as factors that (1) play a role in an integration process, (2) are controllable by management at the start or during the integration process and (3) have both an business and an IT interpretation and represent possible interactions between them. It will be one of the research objectives to validate these factors with case data. Similarly,

Schonewille and Bouwman (2010) identify four *process effects* that are defined as outcomes of the integration process, which will also be validated in this research. For increased clarity of the terminology, these concepts have been named *PMI factors* and *PMI effects* throughout this research (see Figure 1.2). The factors/effects model will be used to look into relationships between PMI factors and PMI effects.

The relationships that are of most interest relate business (factor/effects) to IT (resp. effects/factors), since such relations help to understand the impact that business and IT can have on each other. This research will determine whether such relationships exist between business and IT, and when they do, the type of relationships will be clarified through either two-variable (e.g. causal) relations, or multi-variable relations (e.g. interaction effects). The focus will be on relationships that cross over between business integration and IT integration.

The compiled list of PMI factors and PMI effects is adopted from Schonewille and Bouwman (2010). The validation of the PMI factors and effects used in the factors/effects model will be done through a literature survey of recent literature to update the findings with recently conducted research. Finally, the impact of the integration level will be included into the model. Literature has shown how the approach to post-merger (IT) integration must be driven by and aligned with strategic (business) goals. It is argued that the integration level should follow from the foreseen benefits that were decided upon by management in a pre-merger phase. Accordingly, this suggests an impact of integration approach on business and IT related factors and effects in the aforementioned model. One objective therefore relates to this suggestion and seeks to verify or dismiss such an impact.

Altogether, this research is relevant for both the academic community and practitioners in the field who face an M&A. It will allow practitioners to focus their resources on those areas that specifically contribute to the foreseen effects from the integration process and to manage an effective collaboration of business and IT.

1.3 Research questions

In order to reach the objectives described in the previous section a set of research questions has been formulated. These questions serve to guide the research during the project and to keep the research within scope. The main research question (MRQ) is stated very broadly; therefore sub questions (SRQs) will serve to split the main question up in smaller, better manageable problems. The focus during the project will hence be on answering the sub-questions and all these pieces will work together to be able to answer the main research question. Apart from being a useful decomposition, the sub-questions also define a chronological order in which the research will be conducted.

The main research question is about what PMI factors, from both a business and IT point of view, influence the effects or outcomes of the integration process. It is noted that we explicitly refer to the post-merger integration, which is common terminology for the phase that is entered after the M&A deal has been signed. The main research question is formulated as follows:

MRQ: What impact do business and IT related factors have on the effects of post-merger integration activities?

The initial list of seven PMI factors and four PMI effects from Schonewille and Bouwman (2010) has been compiled in 2010. The first part of the research therefore focusses on recent literature in mergers & acquisitions (M&A) and enterprise integration (EI) and will serve to test the factors and effects against recent findings from both a business perspective (i.e. M&A) and an IT perspective (i.e. EI). Are the same factors/effects still being mentioned in literature? Are there new developments that makes their use obsolete? Does the literature support the presence of these factors and effects? Such questions will be addressed in the first sub-research question.

SRQ1: Can the determined set of business and IT related factors and effects be validated with recent scientific literature?

The validated set of factors/effects will be used for further analysis in exploring the relationships between PMI factors and PMI effects. The focus will be on the influence of business on IT and vice versa. The second sub-research question is formulated as follows:

SRQ2: Which relationships exist between business and IT related factors and effects?

Finally, an insightful aspect of the integration process relates to the integration approach that the acquiring firm may take towards post-merger integration of the acquired firm. Integration approach closely relates to management choices such as the level of integration that is aimed for, the speed of integration, and objectives such as retaining staff. There are some authors that argue for a contingency approach towards integration, derived from the merger objectives. They argue that such choices must always be motivated and driven by previously defined objectives. Possibly, the choice for a certain integration approach has a substantial impact on the way business and IT impact each other during post-merger integration. Sub-research question three aims to clarify the role of the integration approach, and is formulated as:

SRQ3: What is the role of integration approach in the relationships between factors and effects?

SRQ1 is logically deduced from the MRQ; sets of factors and effects have been compiled, yet they have not been verified by recent literature. Since these factors and effects lay the foundation for the remaining part of the research, it is of key importance to update the set with recent findings. SRQ1 will also

serve to determine the level of detail this research will go into, because process factors as well as process effects can be stated on different levels of analysis and this choice will determine the level of detail of the remainder of the research. The aim is to make a choice that is on such a level as to be generic enough to contribute to academic knowledge but also to be practical enough to be useful for practitioners.

When these sets of factors and effects have been validated, SRQ2 addresses the MRQ splitting it up in two problems; whether or not there exists an relationship of one on the other, and what the type of this relationship is. In answering this SRQ, it will also be discussed how different relationships will be defined throughout the research and where thresholds will be about when a relationship can be labeled significant.

Finally, the role of integration approach is included in SRQ3. It will discuss whether the impact of factors on effects can be related to the integration approach and previously defined objectives for the M&A. This type of information will help enabling to associate it to desired process effects to add an extra dimension to the MRQ. Altogether, answering the SRQs gives a broad understanding of the MRQ and enables a thorough discussion on the topic. See Figure 1.3 for the positioning of the research questions within the factors/effects model.

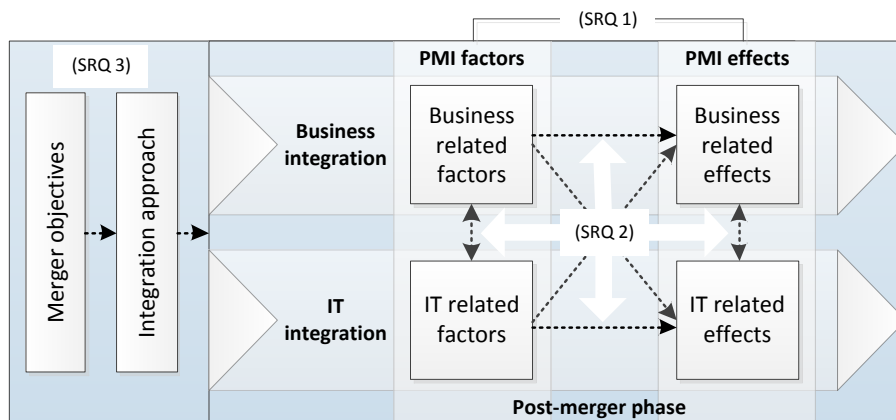


Figure 1.3: Positioning of the research questions within the factors and effects model of the M&A process

1.4 Research approach

The first part of the research will be a literature study with a focus on recently published articles in the field of enterprise integration and mergers & acquisitions. Previous research has proposed a number of PMI factors and PMI effects and the literature study serves to update this list with findings of other research. In order to perform the literature search, a number of scientific databases will be consulted with search terms that have proven to be successful in the past. Previous works of students and researchers in the field of EI in

M&As can be used to check for literature reference lists. Furthermore, recent publications of authors of former influential papers will be checked in particular in order to see their advancements in their studies of the topic. The goal of this part of the research is to answer SRQ1 and to determine the level of detail in the analysis of the data.

To answer the remaining SRQs from the previous section, qualitative data from case studies are available. The core of the data that will be analyzed consists of 29 interviews which were all conducted in relation to two different case studies of mergers and acquisitions within the transport domain. The interviews have been readily transcribed to text and were previously coded in Atlas.ti in order to gain the insights that have been described in the introductory section.

Nevertheless, the data still contain a wealth of information that can be retrieved by a new way of coding, making use of a different research perspective. For the purpose of achieving the newly formulated objectives, all interview coding will be critically reviewed and adapted to the sub research questions. Where previous research aimed at identifying process factors and contextual aspects, the focus will now be on identifying process factors in combination with process effects (see Figure 1.1).

Part of the challenge that lies within this research is related to the human judgement that comes with coding qualitative data. In order to produce reliable results, it requires a very consistent way of dealing with the data. Therefore decision rules will be used in order to arrive at a objective assessment and to keep a neutral stand.

Chapter 2

Literature Review

Mergers and acquisitions (M&As) are a common phenomenon in today's business environment, even though there is widely supported evidence that the majority of M&As is unsuccessful in reaching their initial goals (Haleblian et al., 2009; Henningsson and Carlsson, 2011; Zaheer et al., 2013)

When addressing information technology (IT) integration in the context of mergers & acquisitions, both business and IT related literature is relevant. Research from a business point of view typically does not consider IT related issues, while research on IT integration tends to focus more on technical aspects rather than the business environment. The focus of the literature research has therefore been divided over two main groups of literature. A first group of literature focuses on the M&A process from a business perspective, looking at different types of mergers, drivers for engaging in M&A, integration approaches, factors that influence synergy realization and performance measures. A second group of literature addresses the challenge of integrating information systems across enterprises, often referred to as Enterprise Integration (EI).

2.1 Mergers & Acquisitions

The term 'Mergers and acquisitions' (M&A) refers to the situation in which two or more firms combine into one. Throughout the literature, authors have used different distinctions between a *merger* and an *acquisition*. Some authors indicate that there is only a juridical distinction between them (Henningsson and Carlsson, 2011), while others describe a merger more as a 'friendly' combination of two firms and an acquisition as the 'hostile' purchase of a firm in order to incorporate into the parent firm (Marks and Mirvis, 2011). The distinction often serves to indicate a level of equality between the merging partners (Wijnhoven et al., 2006) but one might realize that there are very few true "mergers"; in nearly every case there is one dominant firm present (Lynch and Lind, 2002). For the scope of this research the terms *M&A*, *merger* and *acquisition* will be used interchangeably to denote a context, in which the level of equality between the participating firms in itself is not of key importance.

Cases of M&A have been first recorded in the late 19th century and have been increasingly crossing industries and regions throughout the 20th century (Cartwright et al., 2012). Historically, mergers have shown a tendency to clus-

ter in time (Duchin and Schmidt, 2013) in which the concept of *merger waves* is used to indicate periods of high merger activity (Mirvis and Marks, 2003).

In scientific literature, M&As have enjoyed a broad interest from multiple fields (Haleblian et al., 2009; Gomes et al., 2013). Scholars from economics, management, finance, sociology and accounting have all contributed to our current understanding of the causes and consequences of M&As. A number of researchers says that we still do not fully understand the phenomenon of M&A and that we are still unable to grasp the complexity at stake. Commonly heard arguments are that the literature is too fragmented (Larsson and Finkelstein, 1999), that there are still gaps in literature that need to be addressed (Haleblian et al., 2009) or that it lacks interconnectedness (Gomes et al., 2013) in order to create a complete understanding. For example, literature on (critical) factors for success seems to be abundant, still some academics argue that we do not seem to know much about what influences M&A outcomes (Meglio and Risberg, 2010) and that we need to start rethinking our research methods (Cartwright et al., 2012).

In today's business environment, M&As have become an integral part of business growth strategies rather than single events (Freitag et al., 2010). According to Schweiger (2002), some executives even think of M&As as strategies in and of themselves. He states that they are merely tools of implementation and that they must be driven by a sound business strategy. History shows that mergers are phenomena that are highly complex and multi-dimensional (Larsson and Finkelstein, 1999; Cartwright et al., 2012). Some authors have argued that each merger in itself is per definition unique which certainly would complicate a unified understanding of the issues involved.

In the scope of this research however, M&A will be used to denote the context of IT integration processes. This section of the literature review we will highlight a number of aspects in the M&A context.

2.1.1 Merger Types

There are different ways to describe the situations in which M&As appear. One way to describe them is through the relation between acquirer and target firm in the value chain. When an acquiring firm acquires one of its competitors (horizontal) the M&A context can be quite different from when it merges with a supplier or customer (vertical). Broadly speaking, mergers can be classified into three categories based on potential synergies: horizontal, vertical and conglomerate (Gaughan, 2005; Wijnhoven et al., 2006). However, a more elaborate distinction on the basis of the value chain relationship can be made (Henningsson, 2007):

Horizontal: target firm is a competitor that operates in the same industry and targets the same customer groups with a comparable product, service or technology

Vertical: target firm is either a customer or a supplier of the acquiring firm, hence two links in the supply chain merge to one

Market concentric: target firm shares the same customer group as acquiring firm but offers a different product, service or technology

Product concentric: target firm offers the same product, service or technology but to a different customer group

Conglomerate: target firm offers essentially a different product, service or technology to different customer groups (potentially operates in a completely different industry)

Deal Type

Another way to describe mergers can be through the degree of freedom of choice, which is sometimes referred to as *deal type*. A *friendly* merger is often used as a term for a deal where both firms have equally agreed to merge, while a *hostile takeover* refers to taking control over a firm against the will of its management (Gaughan, 2005). A hostile takeover is not necessarily against the will of its shareholders. One of the tools to complete such a hostile deal is by a tender offer, which communicates the bidders terms directly to the shareholders. Researchers have been studying the impact of deal type on performance, suggesting that tender offers outperform mergers (Haleblian et al., 2009). However, outcomes of such research have yet yielded inconsistent outcomes (Canina et al., 2010).

2.1.2 M&A Drivers

We assume that management has some kind of reasons as to why to initiate an M&A before making the decision. These reasons for initiation are referred to as the drivers behind an M&A. Another way of approaching the same concept, is through the notion of previously defined objectives - which are benefits that management hopes to achieve through merging with another firm. We will use the terms drivers, objectives and benefits from the M&A interchangeably throughout this document in understanding 'why do firms merge?'.

The most generic way to describe the drivers behind M&A activities is the need to increase shareholder value. Extensive research has been conducted into the antecedents of M&As in order to increase our understanding of the mechanisms behind it (Haleblian et al., 2009). The decision to merge is often motivated by a multiple of reasons and expectations of foreseen benefits. However, we can identify two most important reasons for initiating an M&A reoccurring in literature: *growth* and *synergy* (Gaughan, 2005).

Growth

Mergers are a way to achieve fast growth, which is usually much faster than growth through internal development (organic growth) (Gaughan, 2005). If a window of opportunity arises, a firm may not be able to exploit it through internal expansion. A merger or acquisition in this case, can enable a firm to quickly acquire assets, resources and/or knowledge rather than developing them from scratch. Also in times when the industry in which a firm operates experiences slow growth, management may be triggered to seek growth opportunities in other ways, such as through M&As.

Synergy

A term that is often encountered in an M&A context is *synergy*, which is defined as what is occurring when two units can be run more effectively together than apart (Henningsson, 2007). It suggests that the value of the two firms after the merger will be greater than the sum of both firms apart, which sounds appealing but has proven to be hard to achieve in reality. Henningsson and Carlsson (2011) divides synergistic potential in three basic types of synergies:

Technical economies occur when the new firm is able to produce higher output with the same input, or produce the same output with fewer resources. Cost efficiencies fall into this category, often referred to as *economies of scale* and *economies of scope*.

Pecuniary economies correspond to the increase in market power that the new firm gains. This goes back to the idea that having fewer firms in an industry increase the firm-level price setting power (Haleblian et al., 2009). In the past, mergers have been disapproved by the authorities on the notion that it would provide to new firm too much market power (Evripidou, 2012).

Diversification economies relate to risk management aspects, in which firms with a more diverse product portfolio are better capable of avoiding or spreading risks. For example, Evripidou (2012) researched the effect of M&As on systematic risk in the airline industry.

Managerial Hubris

The outcomes of a meta-study by Haleblian et al. (2009) suggests that not all M&As are initiated for rational reasons. While much work assumes that all mergers aim to maximize shareholder value, a substantial amount of research focuses on managerial self-interest. The 'hubris hypothesis' of takeovers was first proposed in 1986 (Gaughan, 2005). CEOs since then have been the subject under study of predominantly financial researchers, who have found links between CEO acquisition behaviour and for instance ego gratification. Marks and Mirvis (2011) also include the impact of CEO ego in their proposal for a M&A research agenda. They add that although executive pronouncements will always express the business case behind any deal, CEO ego has been concluded to be a primary driver of M&As in the USA.

2.1.3 Modeling the M&A Process

The phenomenon of mergers is commonly modeled as a process with distinct phases (Schweiger, 2002; Alaranta and Henningsson, 2008). Usually, the merger is divided into three phases intuitively called the pre-merger, merger and post-merger phase (Mehta and Hirschheim, 2004). In this terminology the pre-merger phase includes the due diligence process (which is also a popular topic in within M&A literature, see Schweiger (2002); Galpin and Herndon (2007); Boyle and Winter (2010)), strategic planning, searching for a partner, negotiations and announcements to media and analysts (Mehta and Hirschheim, 2004). The merger phase in this model can be considered a discrete event in

which the merger deal is signed. It indicates the transition from pre-merger to post-merger. The post-merger phase is often referred to as the 'integration phase' and will be discussed in more detail in Section 2.1.4.

Schweiger (2002) introduces a similar but slightly different model to assess the M&A process. This approach identifies key elements of the M&A process, which are illustrated in Figure 2.1. The process starts with previously defined objectives, or drivers for the M&A. He premises that the entire process should be aligned with and driven by these objectives in order to create value. Next, he identifies a transaction stage in which information is gathered and the target firm is being assessed. The moment the deal is officially announced, the transition stage begins in which activities in preparation for the integration phase take place, such as creating an integration plan and managing communication to all stakeholders. The integration phase starts after closing the deal, when control has shifted to the acquiring firm who can now "officially" make changes to the target firm. The last key element is evaluation, which is motivated by the need to continuously improve the integration process.

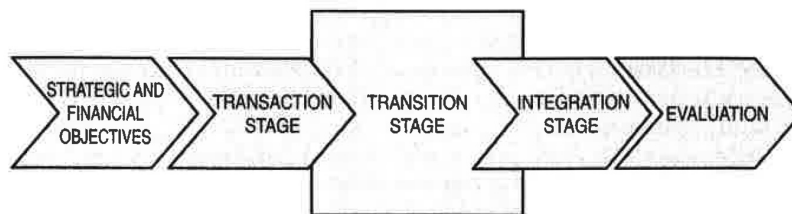


Figure 2.1: Key Elements of the M&A Process from Schweiger (2002)

For the purpose of this research, the focus will be on the integration stage from Figure 2.1 - which we refer to as the post-merger integration (PMI) phase. This is the phase in which the two organizations are aligned, and where business processes and IT systems are expected to be integrated to at least some extent. Here, business and IT related factors of the combined firm hypothetically have an impact on each other. Originally, Schweiger identifies the transition stage as the phase in which preparations for the integration stage - such as integration planning, deciding on an integration approach and creating integration teams, are being made. However, here we will adopt a somewhat different view in that such decisions are considered factors in the integration process that must be continuously managed within the integration stage.

2.1.4 Post-Merger Integration

Using the term *integration* should raise a certain degree of cautiousness. It seems to be used exhaustively in literature and is often used as an umbrella term for all unification processes after a merger deal is signed (Dauber, 2012). Dauber suggests that this overgeneralization is a major reason for inconsistent findings across studies. Nevertheless, assumingly everyone has a certain sense of what is meant when we talk about integration - regardless of the exact boundaries of the definition. In this section, a number of descriptive dimensions

of post-merger integration are discussed in order to understand the complexity and diversity across post-merger situations.

It is generally accepted that in order to realize synergistic potential from a merger, firms require a certain degree of integration in the post-merger phase (Ellis et al., 2009; Henningsson and Carlsson, 2011; Zaheer et al., 2013). Larsen (2005) says that post-merger integration (PMI) is often regarded as a primary lever for value generation in an M&A process. In the view of Reed Lajoux (1998), integration is only necessary if the acquiring firm has strategic reasons for the merger. If motives are purely financial, integration may actually be harmful. Larsson and Finkelstein (1999) states that the strategic motives of a merger are the potential benefits that are realized through integration.

Autonomy and Interdependency

The two most important drivers for deciding on the degree of integration, suggested by Haspeslagh and Jemison (1991), are *organizational autonomy* of the target firm and *strategic interdependency* between the two firms (Larsen, 2005; Henningsson and Carlsson, 2011). Depending on numerous factors the target firm may need a high degree of autonomy to conduct its operations in a value creating way. When in such a case restrictions apply on the amount of day-to-day freedom that the acquired firm is granted to manage its business, it may lead to negative consequences. Removing autonomy can lead to departure of key target executives, misunderstandings of local operating or market conditions, reduced emphasis on exploration activities in the target firm's domain, and operational inefficiencies (Zaheer et al., 2013). Similarly, the degree of strategic interdependency between the two firms describes on what level business processes can lead to synergies between the two firms. Haspeslagh and Jemison argue that management needs to clarify the levels of these two dimensions in order to decide on granting or refusing autonomy to the target firm.

Similarity and Complementarity

Another important concept along which to consider post-merger integration, is the degree of *relatedness* between the two firms. Relatedness can be understood by considering the dimensions of *similarity* and *complementarity* (Larsson and Finkelstein, 1999). According to Zaheer et al. (2013), considerable research have shown that the degree of business similarity of two firms is closely related to technical synergies, which can be achieved through high integration. On the other hand, high similarity is also related to lower level of autonomy of the target firm. This is different in considering complementarity, which is commonly linked to other types of synergies such as pecuniary and diversification synergies. Zaheer et al. (2013) identifies three types of complementarity that are common throughout the literature, which are horizontal, vertical and geographical complementarity. They consider a high degree of horizontal complementarity to be a source of autonomy, since complementarity represents differences that are uncommon to the acquiring firm. Nevertheless, to unlock the value of complementarity the two firms need to jointly coordinate their actions and processes, hence integrate to a certain extent. Zaheer et al. therefore argue that complementarity leads to both autonomy and integration.

2.2 Business Integration

Recall from section 1.2 that in order to research the reciprocation between business and IT in a post-merger integration, the business and IT have been separated. The post-merger phase has thereby been modeled as a business integration and an IT integration that run in parallel. A business integration in this model includes both the integration of the organizational and decision making structures, as well as the integration of the firm's business processes. In this section the PMI is considered from a business point of view, and further on in Section 2.4 the IT integration will be considered.

2.2.1 Business Related Factors

Approaching the post-merger integration process from a business perspective, we note that a large number of authors from both the academic as well as the business community have contributed to our current understanding of M&As. Book authors tend to focus on the things that can go wrong and how to manage them (Mirvis and Marks, 2003; Gaughan, 2005; Vielba and Vielba, 2005), while scholars have looked into relationships and dependencies between different aspects of a merger. From this pool of information, we aim to compile an overview of the most common business related factors that are mentioned extensively throughout literature. When attempting to consolidate factors from different sources, practical issues emerge; different levels of generalization are used, different terminology creates ambiguity, divergent approaches frame similar concepts in a different way, and so on.

As a starting point, seven process factors have been adopted from Schonewille and Bouwman (2010): Staff/People, Speed, Communication, Project Management/Planning, Managerial Commitment, Expectations, and Integration Level. Accordingly, for the purpose of this research we have used the following criteria to select business related factors:

- (1) they have an impact on the outcome of the PMI process,
- (2) they are regularly mentioned in M&A literature, and
- (3) they are controllable at the start or during the execution of the PMI process.

On the basis of these criteria, we recognize that *contextual* aspects are not included in the list of factors. A contextual aspect is defined by Schonewille and Bouwman (2011) as "an internal or external circumstance that cannot be controlled by management but is accepted as a fact that should be considered in the closure of the M&A deal".

Business Staff

Employees often perceive M&As as periods of drastic change. Such changes fuel employees' tendency to become more cynical towards their organization (Melkonian et al., 2011). Galpin and Herndon (2007) also emphasize the effect that people often tend to "decommit" during M&As. Even when key personnel do not leave the firm after a M&A, they can lose commitment especially when a lack of communication creates uncertainty or instability in the environment. A key aspect of the personnel factor is therefore the need to bring

or keep key personnel into the right shape in terms of motivation and support for the merger. Larsson and Finkelstein (1999) identified *employee resistance* as one of three main determinants of synergy realization and studied (among others) the influence of managerial style. They point to career implications as one of the reasons why employees' reactions to M&As are so negative. Melkonian et al. (2011) studied how justice perceptions by employees impact their willingness to cooperate after an M&A and found that it has a significant and lasting influence. Hartog (2004) looked into the impact of perceived uncertainty in a postmerger situation and found that it can affect employees' behavior such that it negatively impacts the realization of strategy. Knilans (2009) mentions the retention of valuable employees as one of the key levels of integration.

Integration Speed

The issue of speed of implementation is mentioned as a critical success factor in Gomes et al. (2013). They elaborate on the contradicting findings in literature about the effects of speed in postmerger integration. On the one hand, a high speed avoids uncertainty and rumor creation by employees - the costs of losing momentum of a business are often greater than the costs incurred by mistakes through quick decisions. On the other hand, a slow integration helps reduce conflicts between parties involved. It helps build trust between the employees of the firms. Gomes et al. note that there is no "right" speed at which to integrate, but rather requires a contingency approach. Lynch and Lind (2002) states that a slow post-merger integration is one of the reasons why mergers fail. Knilans (2009) identifies speed as one of the key levers in cultural integration after an M&A, which he defines as the sense of urgency that must accompany the integration. Finally, Mirvis and Marks (2003) also name speed of the transition as a factor, and advise that most changes should be made quickly as this demonstrates leadership and gets people to think about change.

Communication

Multiple sources stress the importance of an effective communication strategy (Schweiger, 2002; Mirvis and Marks, 2003; Gomes et al., 2013). M&As announcements can be a source of questions from employees about their own future and that of their firm. Communication in this sense serves to take away this uncertainty and anxiety and prevents rumours from being spread. Employees tend to be cynical about changes and may suspect 'hidden agendas'. A good internal communication therefore both addresses personal issues and dispells political issues (Vielba and Vielba, 2005). Postmerger communication also set the tone for integration activities and conveys the integration message by providing direction and clarifying management decisions (Mirvis and Marks, 2003). Furthermore, external communication to customers, suppliers and shareholders is also of importance for the success of the M&A.

Project Management/Planning

There are many factors that relate to managing the integration project and have an significant impact on the outcome of the process. Teerikangas et al. (2011) looks into the role of "the integration manager" in acquisition performance.

They find that the integration manager plays a value capturing role both by creation of additional value as well as avoidance of value leakage, thereby increasing the acquisition's economic performance. Other authors also recognize the importance of the (composition of) integration teams (Schweiger, 2002; Knilans, 2009). The main argument is that in order to keep employees motivated and cooperating in integration activities, a competent team must be composed that can address employee morale and is able to effectively communicate a clear direction to staff.

Another factor related to project management is the merger planning. According to Knilans (2009), planning for integration revolves around *vision* and *communication*. Galpin and Herndon (2007) promotes the use of planning milestones, such as 'First 100 Days'. Planning helps to address employees' uncertainty about the future and/or direction of the organization hence implicitly uncertainty about career implications.

Management Commitment

According to Galpin and Herndon (2007) the most often ignored factor in integration work is the role of executive leadership. They compiled a list of action points that top management should consider, including factors such as: communication to employees, regular attendance at key events and regular integration updates at executive meetings. Mirvis and Marks (2003) say that how the merging companies respond to employees' issues such as stress, uncertainty, and anxiety is to a large extent determined by top level leadership. Waldman and Yammarino (1999) also argues that CEO charismatic leadership processes are central to the effective implementation of a M&A. In more recent literature, Gomes et al. (2013) recognizes postmerger leadership as one of seven critical success through the M&A process. They approach it differently, by stating that a lack of decisive action from executives in establishing a clear direction and management for the change during the integration process will inevitably result in failure.

Expectations

Often implicitly addressed in M&A literature is the factor of stakeholders' expectations. Jemison and Sitkin (1986) describes expectational ambiguity as one of the key impediments that reflect the role of postacquisition management. According to him, ambiguity is sometimes effectively used in preacquisition negotiations to come to an agreement between the two firms. However, when this ambiguity is carried to the integration phase it can be dysfunctional and reduce the chances for successful integration. Ellis et al. (2009) combines the heightened expectations of various stakeholders with the generated uncertainty and anxiety of the M&A and links it to attitude about commitment and trust which can impede the firm's ability to successfully implement changes. They also state that expectations plays a greater role in M&A cases involving similar-sized firms. Lynch and Lind (2002) name the overly optimistic expectations of synergies as one of the three main reasons why M&As fail.

Integration Level

In an analysis of integration literature, Dauber (2012) concludes that scientific papers yield mostly contradictory findings in the question whether the level of integration plays an important value-adding role. According to him, there are two sides to the story. A high level of integration is on the one hand associated with a higher realization of synergy and on the other hand associated with a higher level of disruptions and failure due to cultural differences. This seemingly paradoxical statement is also mentioned in Gomes et al. (2013) and is elegantly formulated in Zollo and Singh (2004) as: "Striking the right balance between achieving the necessary level of organizational integration and minimizing the disruptions to the acquired firm's resources and competencies is a fundamental challenge that affects the success not only of the integration process but also of the entire acquisition."

In order to gain more insight into the different levels of integration, five integration approaches are distinguished: symbiotic, preservation, absorption, holding, and transformation (Haspeslagh and Jemison, 1991; Ellis, 2004). It is noted that the set of attributes and capabilities required to create value from the M&A is contingent upon the integration approach (Ellis, 2004).

Preservation: an approach in which the acquired firm is strategically allowed to continue to operate independently after the merger. It is key in this approach to maintain the firm's strategic resources and capabilities. Despite the autonomy, resources of the entire organization can now be provided to improve the operations as needed.

Absorption: a full consolidation of the activities of both firms, usually this implies major changes in the target firm's structure and processes.

Symbiotic: both firms require some changes in order to adapt to each other in the new situation. The most valuable resources and capabilities of both firms are combined to achieve the goals of the new organization. The symbiotic approach is typically preceded by a preservation period, in which the two firms learn from each other.

Holding: this is essentially not an integration approach, but merely a situation in which the acquired firm acts as a holding company with no intentions to integrate activities whatsoever.

Transformation: an approach that is considered an extension of the symbiotic integration level, in which two firms gradually adapt their processes as a result of the symbiosis to such an extent that it involves significant changes in their processes and structure, such that both firms are essentially dismantled.

The choice for integration approach is a strategic choice about how will the combined firm position itself within the market and gain in competitiveness. A prescriptive overview of integration approaches based on autonomy and interdependency was introduced by Ellis (2004), who combined the work of Haspeslagh and Jemison with two other influential works. Figure 2.2 shows the integration approaches by Ellis (2004), where the terminology of the original authors is being preserved. They refer to Haspeslagh and Jemison as (H&J),

Marks and Mirvis as (M&M) and Nahavandi and Malekzadeh as (N&M). On the horizontal and vertical axes of the figure are the *Need for Strategic Interdependency* and *Need for Organizational Autonomy* respectively.

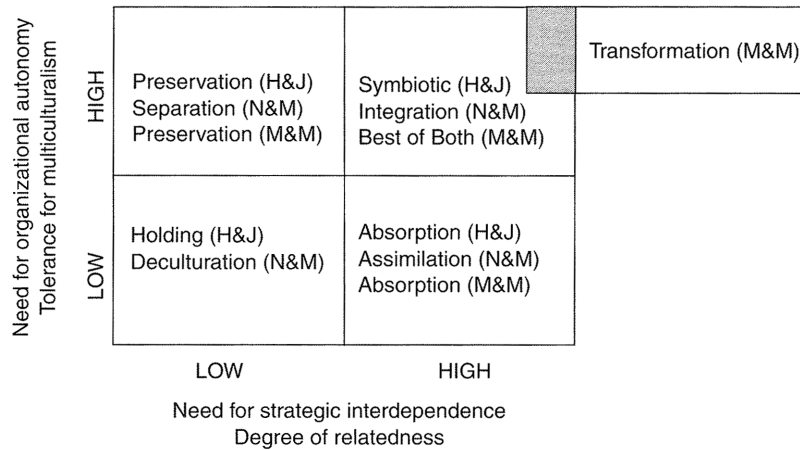


Figure 2.2: Integration approaches from Ellis (2004)

2.2.2 Business Related Effects

The goal of performing a business integration after an M&A is clear; bringing two businesses together and harmonize the activities. Business integration includes both an organizational integration, i.e. the consolidation of the organizational structures, as well as a business process integration concerning the activities carried out by both firms. In order to create a better understanding of the result of a business integration, different effects can be identified both during and after the integration processes. In this subsection, we will elaborate on the business related effects of the post-merger integration.

From Schonewille and Bouwman (2010) four effects are adopted: Financial Benefits, Satisfaction, Consolidation, and Opportunities. These four effects also have an IT counterpart (see Section 2.4) and describe the four areas in which progress on business integration can be viewed. Each effect is highlighted in this subsection.

Financial Benefits

Canina et al. (2010) talks about revenue enhancements and cost savings as the sources of financial benefits in a successful integration. They state that the classic argument of revenue enhancement is improved management - the assumption that the acquirer's management is superior to that of the acquired. Cost savings can be realized through the elimination of redundant assets and staff. They also name market power as a reason for increased financial performance. Galpin and Herndon (2007) include *financial measures* in their piece on

merger measurement systems. They argue that the financial results from synergy projects should be used to measure whether the deal synergies are being achieved.

Customer Satisfaction

Organizational changes, such as a post-merger integration, can force a firm to focus the attention more on internal matters instead of towards the customer. Galpin and Herndon (2007) state that shortly after a M&A, sales are often lower, and customer service levels drop. Hence, they argue for a continuous focus on customer and not to lose sight of the market. Also finance scholars have been considering the effects of post-merger integration on customer satisfaction. In Haleblan et al. (2009) the effect on customers is named as one of the consequences associated with acquisitions. Schweiger (2002) talks about customer reactions, and the retention of customers after the deal through segmenting them into customer groups, focusing on the most profitable ones.

Business Consolidation

Zaheer et al. (2013) name the elimination of redundant activities, and the transfer of resources across the new organization as an effect of business integration. In general, the elimination of redundant activities and resources can be considered as business consolidation. To acquire the synergies from an M&A, Zaheer et al. (2013) also argues for a level of business integration that is contingent upon the need for interdependency and the need for autonomy of the acquired firm. Resources redeployment from Haleblan et al. (2009) can also be linked to business consolidation, in terms of integrating the organization. They argue that the redeployment of resources is a way to generate economies of scope.

Opportunities

Opportunities that arise from the integration can be broadly understood by *synergies*, other than clear financial synergies which were described in Financial Benefits above. Galpin and Herndon (2007) talk about early synergies in terms of "quick hits and low-hanging fruits". Schweiger (2002) discusses documentation of synergies from integration and argues that operating managers have the realization of synergies as part of their budgets and timelines. This demonstrates the effect that post-merger integration can have on operations on the business side.

2.3 Enterprise-Wide IT

As we move towards an increased technically advanced business environment, more and more business processes are being supported by Information Systems (IS) technology. IS have gone far beyond the point where they are merely a tool for operation and it is widely accepted that the technology and architecture of IS also shapes the way in which the business conducts its activities ("Even the most flexible ERP system imposes its own logic on a company's strategy, organization, and culture" from Umble et al. (2003)). The choice and

implementation of such systems is therefore a crucial and business critical process. Here we pose the assumption that from a technical point of view, the implementation of enterprise-wide systems carries strong resemblance to post-merger IT integration. We are therefore able to critically interpret literature regarding such system implementations in a more generic fashion.

Moving from an fragmented application landscape towards integrated information systems has been referred to as IT integration, IS integration, systems integration, Enterprise Application Integration (EAI) and Enterprise Integration (EI) - terms that are used interchangeably throughout this document. In the context of this research, IT integration is understood as the consolidation of software systems which inherently includes changes to the business processes that are underlying them. We note that this can be both intra- and inter-organizational, as is the case in postmerger integration.

2.3.1 Enterprise Systems

Advancements in the information and communication technology (ICT) domain have led firms to move to higher levels of collaboration and in order to remain competitive organizations must increasingly share with suppliers and customers the information that they once protected (Umble et al., 2003). Organizations have therefore been making the transition from separate applications towards a more integrated approach often referred to as Enterprise Systems, or Enterprise Resource Planning (ERP) systems. Two major benefits that ERP provides according to Umble et al. (2003) are (1) a unified enterprise view of the business that encompasses all functions and departments; and (2) an enterprise database where all business transactions are entered, recorded, processed, monitored, and reported.

It has been established that integration leads to an improved enterprise performance (Giachetti et al., 2005). EI is an entire field of research in itself and should not be underestimated in terms of complexity and organizational impact. For the purpose of our research, the process of EI is considered as an integration of IT systems that has high similarity with situations such as a postmerger integration process. In this section, we therefore present some background from literature addressing topics as the drivers of enterprise integration and IT related factors.

2.3.2 EI Drivers

The reasons to initiate Enterprise Integration processes are abundant throughout the literature and differ in level of analysis. Fazlollahi et al. (2012) employ a classification framework for benefits from EI in order to unite various perspectives from literature. The authors propose four layers to which these benefits can be related being (1) Organization, (2) Process, (3) Application, and (4) Information. Although such a classification helps to understand the benefits, it will become clear throughout this section how some high level (i.e. organizational) drivers for EI are actually manifested in hierarchically lower layers.

Business Agility

On an organizational level, a regularly mentioned driver for EI is *increased business agility* (Gold-Bernstein and Ruh, 2004). Business agility corresponds to being able to rapidly adapt to changing environments and to rapidly respond to new opportunities. Cummins (2002) refers to it as *Adaptable Systems and Processes*, because in his view it are the enterprise systems and processes that must be able to adapt and support these changes. Some authors argue that EI is an absolute requirement for business agility (Gold-Bernstein and Ruh, 2004).

Cost Efficiencies

Another organizational driver for EI is reducing costs. Integrated systems should enable a higher degree of efficiency to be achieved by eliminating duplicated effort, reducing complexity and making the best use of skilled personnel (Cummins, 2002). Gold-Bernstein and Ruh (2004) also mention that the automation of business processes allows personnel costs to be reduced by decreasing head count. Furthermore, Cummins (2002) names four sources of scale economies that lead to cost reduction: (1) standards, which should focus on data, interface and practices; (2) the reuse of software, enabling to solve the same problem in different contexts; (3) a common infrastructure, which provides connectivity to promote synergy between systems; and (4) consolidated systems operations, which reduces the number of highly skilled people for maintenance of the system operations, the number of physical facilities, the amount of licences and backup capacity. Furthermore it is mentioned that EI can reduce IT costs as a consequence of lower error rates, lower costs of fixing errors and lower system support costs (Gold-Bernstein and Ruh, 2004).

Quality of Service

A higher degree of operational efficiency can lead to increased quality of service, which in turns leads to increased customer satisfaction. It allows for more accurate forecasting, shorter production cycles and thereby enhance customer service (Umble et al., 2003). Having up-to-date and unambiguous data available to the customer can greatly improve the overall customer satisfaction, which is one of the drivers of enterprise integration. Fazlollahi et al. (2012) also mentions that increased service quality for customers builds customer loyalty which in turn could generate more profits.

2.4 IT Integration

Besides the generic motives for a firm to integrate and consolidate their enterprise applications, M&A specific drivers exist that motivate the need to integrate IT systems in a postmerger situation. According to Vielba and Vielba (2005), practioners have estimated IT synergies to account for between 20% and 30 % of the overall postmerger financial benefits. IT integration is named one of the crutial factors for successful mergers Wijnhoven et al. (2006). Larsen (2005) notes that IT may be a determining factor in reducing employees' resistance to change in an M&A context, but on the other hand it may also be a cause for resistance. Managing the IT integration is therefore an important

task in the entire integration process. Tanriverdi and Uysal (2011) note that the integration of IT application portfolios of merging firms is challenging because you have to deal with different level of customization, standardization, automation, scalability, and compatibility.

2.4.1 IT Related Factors

Enterprise integration efforts are often costly endeavours with high stakes for the firm at hand. A large body of research has been focusing on the determinants of success in EI and thereby discussing key factors that should be managed throughout the process. In this section, an overview is provided of factors that are discussed in literature. These factors will help to understand the reciprocation between business and IT. Using similar arguments as in Section 2.2.1 the same set of process factors from Schonewille and Bouwman (2010) is adopted to categorize IT related factors: Staff/People, Speed, Communication, Project Management/Planning, Executive Support, Expectations, and Integration Level.

IT Staff

Umble et al. (2003) argue that ERP implementation teams should consist of top-notch people that have skills, past accomplishments, reputation, and flexibility. Larsen (2005) also mentions the use of experienced staff to manage the IT integration, however the skill sets of the IT staff is uncontrollable and therefore is not included in this factor. Soja (2006) cites a research that looked into ERP implementation success and identified that the project team must have the appropriate balance between business and technical skills. Additionally, he names team involvement as an important factor. Stylianou et al. (1996) suggest that improvements in planning can be achieved by including IT staff in a pre-merger phase, by which they plea for a higher degree of IT participation. Their survey from 1996 showed that half of the organizations only involved IT personnel in an advisory way. The implementation of enterprise systems can raise new challenges in terms of personnel and skill acquisition (Markus and Tanis, 2000). It therefore can have implications on IT personnel management where it is of key importance to retain the valuable employees.

Implementation Speed

ERP systems are often build up modularly and are rarely implemented at once. In Bingi et al. (1999) they state that the length of implementation is affected by the number of modules that are being implemented. Furthermore it depends on the scope of the implementation (such as different organizational units), the degree of customization and the number of interfaces with other applications. The factor of speed or pace often relates to the unrealistic expectations about how fast IS personnel is able to integrate new systems (Stylianou et al., 1996).

Communication

Robbins and Stylianou (1999) identify the quality of the communication between IS and user areas regarding the progress of the IT integration as a con-

trollable factors. They argue that if end-users understand the issues that arise from the IT integration they are better able to give input and create a cooperative atmosphere. Hence they state that communication is enhanced with end-user involvement in the IT integration activities. Kumar et al. (2002) also mention that having an effective communication strategy helps to share integration objectives among the different stakeholders, which helps avoiding unnecessary misunderstandings because of cultural differences.

Project Management/Planning

Markus and Tanis (2000) emphasize that enterprise systems projects are managerially challenging because they require many stakeholders and cut across different structures of the organization. According to Ram et al. (2013), project management has been consistently found to be a major critical success factor for successful ERP implementation. The authors state argue that the value from project management is not limited to monetary returns, but also includes organizational efficiencies and customer satisfaction. Soja (2006) names the definition of detailed scope, plan and schedule as a critical factor for ERP implementation success. IS integration planning is also named by Howard (2007); Alaranta and Henningsson (2008) to play a crucial role in the IT integration. Umble et al. (2003) quote a survey in which 77% of the IT managers cite poor planning or poor management as a reason for failure of IT related projects.

Managerial Commitment

Top management support is demonstrated critical for the success of IT project success, including ERP implementation (Bingi et al., 1999). Top management involvement for ERP implementations is addressed in Soja (2006) in terms of support, awareness, and participation of top management. They looked at the perceptions of enterprises as opposed to that of experts and found that experts rank executive support higher than do enterprises. Umble et al. (2003) name the commitment by top management in that successful implementations require strong leadership and participation from their executives. The reason they name is that it requires executive level input when a firm needs to rethink its business processes. Top management is also expected to show full commitment when it comes to resource allocation for education and user training (Umble et al., 2003).

Expectations

The most widely recognized success factor for ERP implementations is user education/training (Umble et al., 2003). The authors state that too often there exist high expectations that users are able to effectively use the system only by education and training, while much of the learning actually comes from hand on use under daily operating circumstances. This illustrates the need to manage expectations in the postmerger IT integration process. It is about the expectations of management towards IT (Stylianou et al., 1996), the expectations that IT has towards the end-users as well as the expectations that the users have regarding the new ERP system.

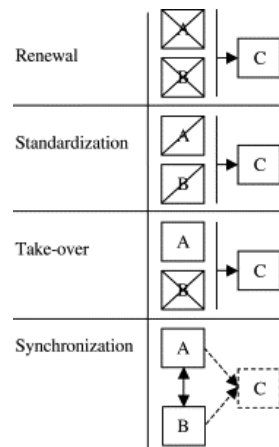


Figure 2.3: IT integration methods from Wijnhoven et al. (2006), in which A and B are IS of the M&A partners and C is the newly created IS

Integration Level

When confronted with redundant information systems after a merger, an IS integration strategy needs to be adopted. Five integration levels from the research literature can be identified. Wijnhoven et al. (2006) and Land and Crnkovic (2011) both name four of these strategies in the context of their research, but use different terminology. Here, the terminology of Wijnhoven et al. is stated. They are (1) Synchronization, (2) Standardization, (3) Take-over, and (4) Renewal. The different approaches are illustrated in Figure 2.3 and described below. Note that a fifth integration level is added to complete the set of possible integration level: disconnected.

Renewal: discontinuation of existing information systems and implementation of a new system. This strategy has the advantage of utilizing state-of-the-art technology and most recent architecture. Approaches involving new systems require significant efforts in managing the transition process and a crucial factor to consider is the retirement of the existing systems.

Standardization: reusing of (parts of) existing information systems into a new system. This strategy is theoretically appealing, since it enables the use of readily acquainted systems up to a standard of proven quality. However, practically a merging systems approach often has to cope with different types of incompatibilities, be it on a data, technological, or architectural level.

Take-over: in essence not an integration strategy, since it simply replaces one systems with the other. Nevertheless, the process of replacement can have a significant impact on both customers and users of the system.

Synchronization: an approach in which data is integrated across different information systems, creating adaptors and synchronization mechanisms such that redundant data entry is eliminated. Loose integration helps to

keep data consistent while maintaining separate user interfaces. A common architecture that facilitates a loose integration approach makes use of middleware products.

Disconnected: do nothing to change the IS, leaving the acquiring and acquired systems as they were. This approach is not included in Figure 2.3 because it is essentially not an integration method. However, doing nothing is always an option.

2.4.2 IT Related Effects

Effects from the postmerger integration are now considered in relation to IT. It is noted that effects from the integration process may show a strong resemblance to drivers of EI, since these are the desired outcomes of the process.

IT Financial Benefits

Installing an enterprise wide system is expensive and risky, still successful IT integration can contribute to the overall merger performance measured by return on investment or return on assets figures (Robbins and Stylianou, 1999). One commonly heard effect from the PMI process is related to cost reductions. In the light of IT a successful integration can lead to a number of cost efficiencies. Standardization of IT application portfolios can lead to significant cost savings due to fewer licences and volume discounts (Tanriverdi and Uysal, 2011). Furthermore, a closer integration of the IT infrastructure can lead to lower costs in hardware, but also human resources in operation and maintenance (Cummins, 2002). Another aspect of reduced IT costs is the reduced IT head count as an outcome of the integration (Sarrazin and West, 2011).

An integrated ERP system contributes to a high efficiency. It can for instance reduce inventory costs and establish related reduction in the cost of capital (Ram et al., 2013).

User Satisfaction

Often used as a measure for implementation success is user satisfaction (Soja, 2006). Enterprise systems are used throughout the organization and it is important for daily business operation that employees are satisfied and productive in using the ERP systems. User satisfaction also shapes management's perception of the quality of the ERP implementation and can therefore be a key determinant to success. Furthermore, Gold-Bernstein and Ruh (2004) argues that enterprise integration leads to increased customer satisfaction although this may be contingent upon the industry type of the organization. Markus and Tanis (2000) argue that organizations are able to present "one face to the customer" with ERP systems in place and that they can update customers on stock availability and order status.

IT Consolidation

An effect of IT integration is the consolidation of information systems, thereby reducing the number of different systems. In that sense, enterprise wide solu-

tions help organizations to get rid of their legacy systems, which are characterized by disparity and high IT costs (Bingi et al., 1999). On a more generic level, consolidation can be understood in terms of the strategy applied through the integration level factor.

Apart from consolidating systems, ERP systems also impose new logic on a organization's business processes. Therefore an effect of the integration (that is closely related to business aspects) is the reengineering of key business processes and/or developing new business processes (Umble et al., 2003). These changes are related to IT in the sense that they are imposed by the IT systems at hand and are therefore largely managed by IT executives.

IT Opportunities

Opportunities that can arise from the integration of enterprise systems can be considered as an effect of the integration, and were partly described in subsection 2.3.2. An important opportunity is increased business agility, as an effect of IT integration (Gold-Bernstein and Ruh, 2004). Other opportunities include the acquisition of products, licenses, and technologies (Kumar et al., 2002) that become available through the integration of IT systems. Soja (2006) mentions information flow enhancement, which can have positive effects on the quality of data and supporting the business processes. Hence, the potential opportunities that can arise from IT integration are abundant.

2.5 Conceptual Model

In order to answer the research questions from Section 1.3, the findings from the literature review are integrated into conceptual relationships. It has been found that from both a business perspective (M&A literature) and from a IT perspective (EI literature), there is scientific support for the relevance and importance of the seven PMI factors: Staff/People, Speed, Communication, Project Management/Planning, Executive Support, Expectations, and Integration Level. Likewise there has been found support for the four PMI effects: Consolidation, Financial Benefits, Opportunities and Satisfaction. These sets of PMI factors and PMI effects are used to explore the presence and type of relationships between them.

In the post-merger integration phase, it has been found that both a business integration and an IT integration are running parallel. The business integration entails the integration of organizational structures and departments as well as the business processes of the new organization, the IT integration is about the consolidation of the enterprise-wide information systems. Both of these integration processes have shown to result in a number of PMI effects, and are influenced by manageable PMI factors. To achieve an insight on reciprocation, it is essential that the PMI factors/effects are considered for business and IT separately. This allows for an analysis of the (existence of) relationships between factors and effects from business and IT.

In an attempt to obtain an understanding of the complex reciprocation between business and IT, different types of relationships are included in the conceptual research model. The choice for the conceptual relationships that are

considered is motivated by the literature review, and are consistent with the concepts used in Miles and Huberman (1994).

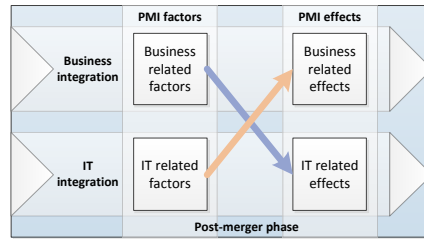


Figure 2.4: Conceptual two-variable relationships between business and IT

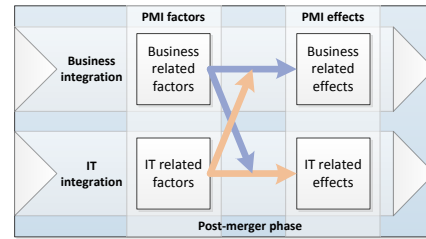


Figure 2.5: Conceptual multi-variable moderating relationships between business and IT

Firstly, two-variable relationships are considered that describe a relationship between a PMI factor and a PMI effect. Note that the focus is on identifying relations between business and IT. This conceptual relationship is shown in Figure 2.4. Two-variable relationships can show a direct influence from business to IT or vice versa. Secondly, multi-variable relationships are considered which introduce a third variable into the relationship. Multi-variable relationships are assumed to be able to demonstrate more complex ways in which business and IT interact, for which they are also named *interaction effects*. Three different multi-variable relations will be conceptualized here and will be used further in this research. The first type of multi-variable relationship is the moderating effect (shown in Figure 2.5) which demonstrates how factor C (e.g. an IT related factor) has a moderating effect on the relationship between A and B (e.g. from a business related factor to a business related effect). Specifically, the focus is on identifying relationships where business moderates IT relations, or IT moderates business relations. Furthermore, it is noted that two other ways of multi-variable relationships can be constructed from two two-variable relations. These relationships are shown in Figure 2.6 and Figure 2.7. The relationship in Figure 2.6 shows how a chain of two consecutive two-variable relations can explain more complex business/IT reciprocation, by showing how factor A leads to effect B which leads to effect C. Note that effect B is the intervening variable in this relationship. The relationship shown in Figure 2.7 shows another way of combining two-variable relations, identifying that factor A can lead to both effect B and effect C. In this relationship effect C is the additional variable that leads to new insights about the relationship between A and B. Throughout this exploratory study, these types of relationships will be sought by means of identifying PMI factors, PMI effects and the relations they have with each other. It is assumed that the identification of such relationships can contribute greatly to the understanding of the complex role of IT in post-merger integration.

A conclusion that can be drawn from the literature review (which is also the general consensus among authors) is that the research findings in the field of M&A are fragmented and lack a coherent frame of reference. Different explanations have been proposed to understand these differences, but the overall conclusion is that processes in M&A can be extremely complex and multi-dimensional. Such that the result is an abundance of scientific literature, in which each publication analyzes a different set of variables, under different

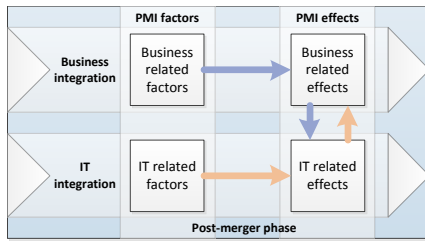


Figure 2.6: Conceptual multi-variable relationships consisting of a chain of two-variable relations

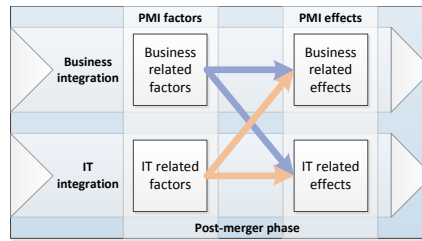


Figure 2.7: Conceptual multi-variable relationships combining two two-variable relations

premises and on different cases - without a common framework to put all of these pieces of the puzzle together. This is the reason why many authors revert to quantitative methods in order to statistically test the significance of some variables (80% of the published articles on M&A since 1963 uses quantitative methods (Cartwright et al., 2012)), but such findings are ill-equipped of grasping the complexities that are ongoing on both an organizational (macro) and individual (micro) level. In this exploratory research, we hope to explicate some of these complex relationships that are present in a post-merger integration.

Chapter 3

Research Approach

Research on mergers and acquisitions has been subject to diverging approaches from a methodological perspective. King et al. (2004) found by a meta-review of the existing literature that the variables that explain M&A performance have still not been found. More recent literature by Gomes et al. (2013) argues that M&A research requires a more pluralistic approach, with integrative frameworks, to grasp the complexities of this multifaceted, multitemporal phenomenon. Notably, it seems as if the most appropriate research methods for M&A phenomena have not yet been found. Finally, Cartwright et al. (2012) argue for a more critical perspective of researchers and promote a mixed methods approach that combines quantitative with qualitative research methods. In this chapter, the research approach is discussed that shows how this exploratory research will be performed.

3.1 Qualitative Research

For the purpose of this research, a research approach that is capable of exploring the conceptual model from Section 2.5 is needed. It should be able to measure the presence and relevance of the PMI factors and effects, and furthermore be able to indicate relationships between them. Ideally it should allow to obtain a deeper insight into the mechanisms that underlie these relations as well. The goal being a better understanding of the reciprocation of business and IT during post-merger IT integration.

A qualitative approach is adopted using case studies. Cases can provide an in-depth explanation of complex processes and can see which events led to which consequences. In this exploratory research, relationships are sought of which we do not know in advance whether they exist. Exploring case studies makes it possible to find such relationships and contribute to a fruitful explanation of the phenomenon and it is therefore suitable to approach our research objectives. Both Meglino and Rivkin (2010) and Cartwright et al. (2012), in their critical assessment of M&A research methodologies, call for including qualitative data analysis in the studies.

To arrive at a thorough qualitative research method, literature from Miles and Huberman (1994) has been used for reference, who have published a practical sourcebook on qualitative methods. Some adaptations to their practices

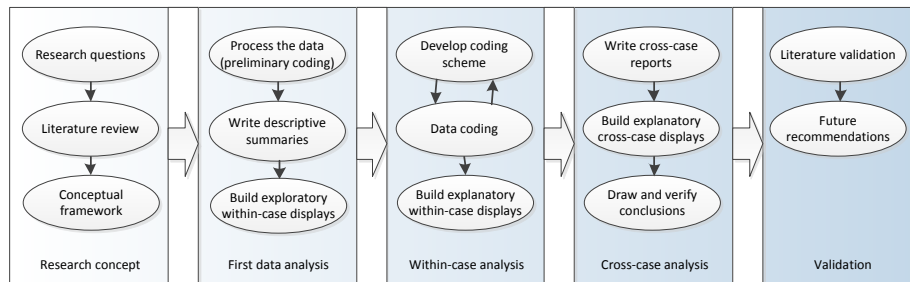


Figure 3.1: Research method based upon qualitative data analysis processes by Miles and Huberman

have been made to fit the specifics of this research. The most important difference being that data for this research had readily been acquired in prior efforts. In Miles and Huberman's approach the data collection plays a significant role in establishing the direction during the research by producing interim analyses and summaries. Due to this circumstance, a slightly modified approach is used to maintain the level of validity.

This chapter serves to elaborate on the methodological concepts that are used and explain step-by-step how they contribute to the research outcomes. Figure 3.1 shows the distinct phases of the research approach that have been defined and summarizes the contents for each phase. The remainder of this chapter will elaborate on each phase, for which Figure 3.1 will serve as guidance.

3.2 Research Concept

The first phase is a conceptual phase which has been described in Chapter 1 and Chapter 2 of this report. In this phase the research questions have been formulated, the literature review has been performed and a conceptual model has been created.

3.2.1 Background

It should be noted that this research is part of a larger project which has shaped much of this research in terms of focus and scope. The most important fact is that this research builds on readily acquired qualitative data, consisting of 29 transcribed interviews covering two cases of M&As in the transport sector. This data had been analyzed in a first run, which had a focus on identifying contextual aspects from the merger context, process factors and process effects (recall from Section 1.2). This analysis focused on verifying the presence and relevance of these concepts, hence the case data has not yet been analyzed in order to identify relationships between them. The first results of the research led to the publication of the article 'Contextual Aspects in Enterprise Integration' (Schonewille and Bouwman, 2011), in which the research focus was on the influence that contextual aspects from the pre-merger phase have on the

post-merger processes. This prior research has shaped the focus of the current research because it is clear that there are still many interesting conclusions to be drawn from the available data, especially in the post-merger phase. In formulating the main research question the focus on the post-merger phase is clearly present. Early in the preparation phase of the research a number of scientific publications were studied to further shape and formulate the research questions.

3.2.2 Literature Review

Due to prior research, a broad literature file was available with scientific publications on both mergers & acquisitions and enterprise integration as well as on the combination of both, information systems in mergers and acquisitions. The literature had not been updated since 2009, therefore it was one of the objectives during the literature review to focus on recent publications. Scientific databases (e.g. Scopus, Web of Knowledge and Google Scholar) have been used to search for relevant publications mainly in the form of articles. Searches were performed on the abstract, title and keywords of the publications. Search terms included: "M&A", "mergers & acquisitions", "mergers", "acquisitions", "enterprise integration", "IS integration", "IT integration", "IT integration", and "information systems".

3.3 Early Data Analysis

Miles and Huberman perceive the data collection as part of the first steps in the actual data analysis, which they refer to as 'early analysis'. These steps force the researcher to consider the data that has been collected 'up to now' and look at interim results to possibly alter the collection of the remainder of the data. Since the data collection has already been performed in this research an 'early data analysis' phase is introduced into the research method which serves a similar function: describing the case content in order to guide the search for relationships.

3.3.1 Preliminary Coding

The early analysis of the data will be combined with preliminary coding. Although the scientific value of this step is still limited, the benefits of preliminary coding are obvious. Firstly, it enables to quickly prompt pieces of data that are related to similar concepts. This helps to cluster the data and to shape the view with which to consider the remaining data. Secondly, it forces the researcher to look for the right level of abstraction in deciding when similar coding can be applied. Thirdly, it helps to keep an open mind while interpreting the data. Whereas adopting a fixed coding scheme in an early stage could already guide a researcher only towards the self-constructed conclusions.

3.3.2 Descriptive Summaries

During and after the early data phase, all data per case will be combined into an explorative description of the case. The summaries will serve to provide

preliminary conclusions about what is happening in the case. They will force the researcher to think of a suitable level of description and can later on be used as the foundation on which to build explanatory displays (see Within-Case Analysis). Furthermore, the cases will provide an easy reading for those who want to obtain a clear overview of the case.

3.3.3 Explorative Displays

In addition to the descriptive summaries in text, displays will be constructed to provide a more concise representation of the case data. Displays are visual formats that present information systematically, allowing the reader to see the data as a whole. Matrices will be used for this exploratory purpose. These are constructed to describe the PMI factors and effects that have been found, and provide them with a qualification. In this phase, the displays are analyzed to find patterns that arise through the data.

3.4 Within-Case Analysis

The descriptions from the early data analysis should have provided a coherent view of *what* and *how* things happened. In the within-case analysis the focus will be on explaining the *why* questions. The explorative displays will serve as a starting point for this analysis. It will look at relations between PMI factors and effects within each case and attempt to explain how certain qualifications came to be and how they explain the reciprocation between business and IT.

3.4.1 Develop Coding Scheme

As a first step, a fixed coding scheme will be developed to code the two cases coherently. The coding scheme will be derived from the preliminary codings and will have to be able to draw conclusions on the basis of the conceptual model. The challenge in this step of the research will be to develop a scheme that is generic enough to contribute to scientific research, but at the same time be specific enough to describe the unique features of both cases. Scoping will be an important part of the process, since the granularity of the extracted information is being decided in this step. The research questions and conceptual model will be leading in determining the scope. There will be an iterative approach to developing the code schemes and the coding itself.

3.4.2 Coding

Once a coding scheme has been developed the data is analyzed for the second time. The preliminary coding will be replaced with the new coding scheme. This implies a new approach to the clustering of the data and moving to a different level of detail. The coding may lead to adaptations to the coding scheme due to new insights and/or new ways of data clustering. Therefore coding and developing the coding scheme will be done in an iterative fashion.

3.4.3 Explanatory Displays

As the final step in the within-case analysis the concept of displays will be used in order to provide in-depth explanations about the cases. Network diagrams will be constructed that show the relationships between business and IT related factors and effects. Next, in a step-by-step analysis it will be the goal to understand why different factors and effects are related to each other. The coding procedure will set the boundaries for what these displays will look like and some iterations are possible between these two steps. The goal is to explain how the factors and effects of the integration processes impact each other (conform sub-research question 2) and explain how business and IT impact each other.

3.5 Cross-Case Analysis

Studying multiple cases in qualitative research is used to increase the generalizability of the research and to obtain a more holistic portrayal of the complex integration processes. A comparative analysis will be done in this phase, to see recurring themes and relations across the cases. We therefore adopt a variable-oriented strategy (Miles and Huberman, 1994) in which the search for factors and effects across cases is the main focus. The two cases will be compared to find both similarities and differences.

3.5.1 Cross-Case Reports

In the first cross-case step, the findings from the explanatory displays are compared to explain the similarities and differences. The most insightful aspects will be included in the cross-case report, which will be structured according to recurring themes that have been identified throughout the cases. It will provide the researcher with a way to determine the generalizability of the conclusions that have been drawn within the cases.

3.5.2 Explanatory Displays

As part of the cross-case analysis the interview data will be consolidated to see how impact between factors and effects can occur. Furthermore, the main findings will be explained in this section along with a visual representation.

3.6 Validation

The final stage of the research will be to take a distance from the data and validate the conclusions that were drawn from them. The goal is to put the results into perspective and see how it related to readily performed research and existing concepts. From the validation follows a set of recommendations for future research.

3.6.1 Literature Validation

Results from the qualitative research will be validated by going back to scientific literature. We will see which results have also been found in the past and which authors have contributed to similar conclusions. This final phase of the research aims to position the research outcomes within the body of scientific literature.

3.6.2 Future Recommendations

Having spent so much effort going through the data gives the researcher the advantage of knowing what information is available and what pieces of information are still missing. This knowledge is valuable for the scientific community to be able to continue on IT integration in mergers and acquisitions. The research is therefore concluded with a set of future recommendations for other researchers that aim to advance further on this topic.

Chapter 4

Case Studies

The qualitative data to support this research had already been collected prior to the start of the current project. There have been data collected consisting of 29 transcribed interviews covering two cases of M&As, which have been explored in this research. This chapter highlights a number of technical aspects concerning the data collection and the data analysis.

4.1 Case Selection

The M&A cases that have been studied are both horizontal mergers in the transport industry, hence the merging of two competitors. The choice for the transport industry has been made due to the rigid nature of the business. It is assumed that transportation of people and cargo is such an established business, that few sophisticated changes in the environment would be expected as a result of the merger apart from the post-merger integration itself. It is therefore assumed that the transport sector is a constant environment, which makes for a suitable case to study integration of IT systems. The first case (Case I) is a cross-border merger in the airline industry, where two national carriers agreed on a friendly merger. The data has been acquired four years after the deal had been signed, hence four years of post-merger integration. The second case (Case II) is an acquisition in the global shipping industry which has been studied three years after the merger.

Both cases have been selected because of the observation that publicly available information pointed towards indications of an interesting role for information technology during the PMI. In one case, the entire M&A was considered a failure due to 'implementation issues', while in the other case the M&A deal was considered very successful without having actually integrated the enterprise-wide IT systems. This information triggered the selection of the cases because they show both sides of the spectrum. On the one hand, IT integration seems to be of key importance to the merger while on the other hand, IT integration seems even unnecessary to obtain success.

Due to confidentiality agreements the names of people and firms have been anonymized. References to the firm names, or any statements that could lead to the identification of firms and/or the identity of interviewees have been edited. Firm names have been replaced with either *acquiring firm* or *acquired firm*.

4.2 Interview Content

In order to extract relevant information from the two cases, 29 interviews have been conducted with employees and managers that have been involved in the post-merger integration process. Case I consists of 17 interviews, and Case II consists of 12 interviews. The number of interviewees was dependent on how many interviewees the corresponding contactperson at the firm had selected for this research purpose.

During the interviews, which were mainly held through telephone contact, the interviewees were asked to elaborate on different PMI factors and PMI effects, and the impact on the integration. They were asked how they perceived the role of business and IT in the entire PMI process, and what their ideas are on the impact on success of the merger.

The interviews were conducted based on to the initial factors/effects model from Figure 1.1. Note that this model included PMI factors as *pre-merger factors*, which means that they are assessed before the post-merger phase. The interviews followed a fixed list of topics to be discussed, but left room open for conversation the moment an interesting topic or idea was expressed. The fixed list of questions topics is included as a list of questions in Table 4.1.

4.3 Interviewees

In both case studies people from different parts of the organization and different organizational levels have been interviewed. Interviewees come from both the acquiring firm as well as the acquired firm, in order to avoid a biased view on the integration process. Some staff can be classified as having a business role, while other are working for the IT department. Furthermore, different levels of management have been interviewed in order to get a full understanding of the cases. The job title of the interviewees together with the classification of business or IT have been summarized in Table 4.2 and Table 4.3 for the airline case and the shipping case respectively.

4.4 Data Analysis

The interviews have been transcribed to text and analysed by using the Atlas.TI software package (version 6.1.1.). This software is specifically developed for qualitative data analysis and allows the researcher to extract information out of an entire collection of qualitative data. It enables to consolidate different types of data files (e.g. text, pdf's, pictures, videos, audio files, etc.) into a single unit of analysis. Codes are used in order to identify common concepts. Codes can be related to each other by defining relationships between them. The process of coding and defining relationships is of key importance in achieving reliable results from the case study, therefore this process will be exhaustively described in Sections 5.1 and 6.1.

The goal of the data analysis is twofold: (1) explore relationships between factors and effects as they were presented in the conceptual models from Section 2.5, and (2) find new factors and effects that describe the reciprocation between business and IT, and the relations between them.

Table 4.1: The interview topic list that has been used to guide the interviews in both cases

Personal: What is your exact job title? Is it a business or IT role? How did you get involved in the integration project? What was your role in the integration?
Contextual: Were there any specific circumstances regarding the merger? Were there guidelines given to you for managing the integration?
(Pre-merger) Factors: What was the situation of the staff around the time of the merger? What were the expectations concerning the duration of the merger process? How would you describe the communication around the merger? How would you characterize the project management? Did you receive sufficient executive commitment for the integration project? Do people have high or low expectations from the actual merger? How deep is the intended level of integration? Where in the process are we now according to you? What are issues that you have experienced so far? Lessons learned?
(Post-merger) Effects: Do you consider the merger to be successful? Do you consider the financial results to be positive? Do you consider the staff satisfaction to be positive? What is the result concerning consolidation? Were there unexpected opportunities that appeared from the merger?
Reciprocation: Did you see an impact from business integration on IT integration, or vice versa? Do you think one can make the other fail?

Table 4.2: Job titles of the interviewees that were interviewed for Case I: Airline case

	Acquirer		Acquired	
	Job title	Bus/IT	Job title	Bus/IT
Case I	Chief Information Officer	IT	Chief Executive Officer	Bus
	VP Ground operations	Bus	Chief Information Officer	IT
	Sr. VP Development	Bus	VP Development	IT
	VP CIO Office	IT	Director Portfolio Management	IT
	Organizer E-business	IT	VP Customer Services	Bus
	VP Development	IT	Organizer E-business	IT
			VP CIO Office	IT
			VP Ground services	Bus
			Program Manager	Bus
			Program Manager	Bus
			Program Manager	Bus
	Total: 6		Total: 11	

Table 4.3: Job titles of the interviewees that were interviewed for Case II: Shipping case

	Acquirer		Acquired	
	Job title	Bus/IT	Job title	Bus/IT
Case II	Chief Information Officer	IT	Director Global Operations	IT
	Chief Operations Officer	Bus	Regional Director	Bus
	Head of Implementation Group	Bus	General Mgr. Business Applications	IT
	Manager E-commerce	Bus	Product Manager	IT
	Director of Service Delivery	IT	Head of Global Shared Service Center	Bus
	Head of Global Service Center	Bus		
	Sr. Director of Tech. Infra	IT		
	Total: 7		Total: 5	

Chapter 5

Early Data Analysis

The data collection process, in which interviews are designed, conducted, and transcribed, is a way to guide the data towards answering the research questions. Since the data from the cases had already been collected, a first data analysis phase is introduced for getting acquainted with the contents of the data. Considering the volume of the data (29 interviews), it would be a missed opportunity if this stage would not be accompanied by an early process of coding. As mentioned in Chapter 3 the goals of this preliminary coding are threefold: (1) being able to retrieve key pieces of data, (2) stimulus to look for similarities across the case, and (3) interpret all data with an open mind. This chapter gives details on the way the preliminary coding was executed and on descriptive results that could be retrieved from this early data analysis phase. The chapter is concluded with a number of general remarks about the interview data, showing different perceptions that can exist within the cases when judging from different viewpoints in the organization.

5.1 Preliminary Coding

Reading the 29 interviews from the two cases has been combined with a process which is referred to as 'preliminary coding'. Being unaware of the contents of the case studies gives an advantage, because the researcher is still free from early judgements. It therefore enables the researcher to keep an open mind while wandering into the pool of data. In order to reap these benefits, the choice was made to start with 'open coding'. This may sound rather cumbersome, hence below we elaborate more on this choice.

5.1.1 Open Coding

Open coding in this research was not performed 'open' in the sense that anything could be code-worthy. Guidelines were created in order to reap the benefits from this process. To obtain a founded understanding of what had happened in both cases, a number of questions have formulated through which the interviews have been read. Any quotation that went into one of the questions has been coded in such a way as to gain insight in the complex mechanisms present. The questions that were used for this purpose are stated broadly:

- (1) What played a role during the post-merger integration?
- (2) What were the results of the post-merger integration?
- (3) How did different aspects have an influence on the results of the post-merger integration?
- (4) What is the role of IT integration in the post-merger integration as a whole?

The post-merger integration in this case includes both business integration and IT integration. We note that these questions are closely related to the components of the factors/effects model and contribute to answering the research questions defined in Section 1.3. Nevertheless, they keep an open mind in an attempt to grasp the complexities of the post-merger integration and understand what happened in the cases.

In question (3) is about identifying relationships between different concepts. The strongest relationship that is sought is causality. Most likely, relationships between factors and effects can be identified, but it could also include the context or relationships to other unmanagable factors. Although these concepts are outside of the scope of this research, it is emphasized that the aim of this stage of the research is to create an understanding of what happened in the cases and that any important aspects that is believed to play a role is taken into account.

Qualifications

An important feature of coding in the search specifically for causal relationships is factor/effect *qualification*. In order to be able to point out causal relationships, a factor or effect must be accompanied by a qualification in terms of high/low, positive/negative, strong/weak etc. An example may help to clarify this step: suppose explanations are sought as to why a firm's annual profit is lower than expected. 'Customer trust' could be identified as a factor that impacts the firm's profit, but in order to be able to derive a causal relationship a qualification needs to be included to pose that "*low* customer trust leads to *low* profit". For this reason, qualifications have been included in the coding procedure whenever possible.

5.1.2 Code families

Already in an early stage of data coding it became apparent that in order to code the data according to the aforementioned questions, a few additional concepts would need to be added on top of the factors/effects model. For the purpose of increasing the understanding of reciprocation between business and IT in a postmerger context, it is observed that - within the previously defined definitions, the factors and effects were not capable of grasping the complexity. A number of quotations, in which the interviewees posed relevant details of the PMI process, could not be classified into either a factor nor an effect. In order not to lose valuable information at this stage an enriched form of the factor/effect model has been used for the coding procedure. The subsection explains the different concepts and code families that have been used in the preliminary coding phase.

Context There are aspects that cannot be controlled during the post-merger phase but nevertheless have an significant impact on the activities that take place. Schonewille and Bouwman coined the term 'contextual aspects' to define this concept. They can either refer to the external environment in which the organization continuously operates (e.g. market situation) or to the pre-merger situation which can shape integration activities during the post-merger integration process (e.g. M&A experience). It is observed that such context related aspects indeed can help to understand causal relationships between factors and effects. They have therefore been included in the preliminary coding procedure.

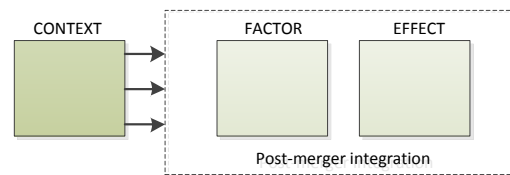


Figure 5.1: Aspects in the (pre-merger) context can help to understand causal relationships between factors and effects.

Factor/Effect The initial form of the factors/effects model assumed that *factors* are preconditions, which are present at the start of the PMI process and that *effects* are results of PMI process. Observations however, show that factors can lead to effects - but that these effects in turn, are factors that can influence the integration process. As an example, one of the cases showed how certain managerial commitment during the process had an impact on staff uncertainty. The staff uncertainty in turn had an influence on the results of the integration process, such as customer satisfaction (see Figure 5.2). This observation has lead to a fundamental change in the definition of the concepts of factors and effects, namely that there is no necessity to include a fixed time difference into the factor/effect relationship and that effects of the integration process can in turn be a factor. The only distinction between factors and effects that remains is that a factor always leads to an effect, hence the direction of the relationship is always one way. Since the factors and effects become interchangeable by this observation, the term 'PMI factor/effect' will be used in the remainder of the report to describe any one of the concepts.

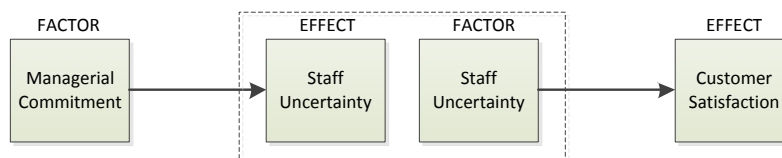


Figure 5.2: Example: the factor 'Managerial Commitment' can have an effect 'Staff Uncertainty', which in turn can have an effect on 'Customer Satisfaction'

Outcome Effects were initially defined as final results of the integration process. The interview data shows however that effects are actually visible throughout the entire PMI process. However, it is indeed insightful to consider the results of the PMI process at a given moment in time (i.e. the time the interview takes place). Therefore a new concept is introduced that distinguishes effects *during* the PMI process from effects at the end of the PMI process, which is termed 'outcome' (see Figure 5.3). It is noted that the difference between an effect and an outcome is subtle - it is merely the time of measurement that differentiates between a factor/effect and an outcome.

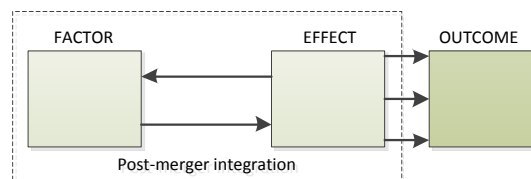


Figure 5.3: The outcomes of the post-merger integration process are a measurement of the effects at a given time

Impact In the search for reciprocation between business and IT, the data shows that it can be difficult to break a statement up into causal relationships. It can occur that relevant statements were made that simply could not fit into simple A to B relationships. Nevertheless, the information is present and it is valuable for understanding how reciprocation actually works. A new code family was therefore introduced named 'Impact' that could hold *any* information about business-IT reciprocation, without having to adhere to a causality or other unidirectional relationship. An example of a quotation that was coded with 'Impact': *"we were rolling out a complete new platform, and if people don't comply with the processes and don't change the way they operate, then it is a failure."*

Measure A number of interesting statements mention success or failure. Some of these 'opinions' are being backed up by the fact that project targets have been met or have not been met. In an attempt to understand diverging perceptions between interviewees (where one person calls the IT integration a success, another calls it a failure) the code family 'Measure' is introduced that can be used to code quotations that are about time targets, project budgets, etc.

Previously Defined Objective It was found in the case data that management has formulated some objectives from the merger that have an impact on the post-merger integration. These objectives are mostly decisions regarding the acquired staff, the integration strategy, etc. Although they are not manageable during the integration (as a PMI factor would be), they are also not contextual in the sense that they are uncontrollable. Data shows that they can have an impact on the PMI and therefore these concepts have been labeled 'Previously Defined Objective'.

5.1.3 Relationships

Recall from Section 2.5 what types relationships have been introduced in order to describe business IT reciprocation. The early data analysis lead to an important observation, that statements from the interviews could hardly ever be identified by means of a multi-variable relationship. It has become clear that interviewees' quotations are such detailed building blocks that only two-variable relationships could be coded. In order to distinguish between the strength of the relation between variables, two types of code relationships have been used during preliminary coding. This subsection serves to explain the differences between the two relationships and explains the contribution of the relationship types in relation to the conceptual models from Figure 2.4 to 2.7.

Causal Relationship

The causality relationship is well-known for its ability to prove or disprove statements within a defined frame of reference. However, causal relationships as universal truths can be hard to retrieve from interview data. It would however be a convincing way to explain reciprocation between business and IT, hence the main focus of the analysis will be to identify such relations from the data. The causality relationship will be indicated throughout this report with the $\Rightarrow$ symbol. The most straightforward application of this relationship would be describing the direct relation between PMI factors to PMI effects, as is shown in the conceptual model of Figure 2.4. Such causalities linking business to IT were not found to be present in large numbers. However, linking multiple two-variable causal relations in a chain (as in Figure 2.6) has been demonstrated to provide more insight, which is also reflected by the observations regarding the factor/effect concept. The actual found relationships will be further elaborated in Section 6.2.

A quotation from the case data serves to demonstrate how the causality relation might be applied between two variables: *"[Customers] got the wrong documents, they got the wrong invoices and of course they were not happy with that. And staff also got frustrated when they could not serve the customers."* In this example the coding would show a causal relationship from variable 'customer satisfaction low' to variable 'staff morale low' (shown in Figure 5.4).

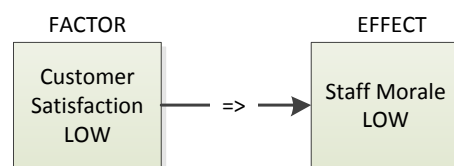


Figure 5.4: Causality is used to identify the two-variable relationship between factor/effect customer satisfaction and factor/effect staff morale as 'Customer Satisfaction low' causes 'Staff Morale low'

Impact Relationship

During preliminary coding it was noted that second type of two-variable relationship could lead to additional insights. There were cases of interviewees pointing to a clear relationship but without the same strength as causality. For this purpose the impact relationship has been defined. This type of relationship can be understood as a weaker relationship than the causality described above. It does not describe a cause and effect but rather takes place on a higher level, renouncing the use of a qualification value. The impact relationship will be indicated throughout this report with the !@# symbol. Identifying impact relations can also contribute to finding interaction effects between multiple variables, such as moderating relations. It has been conceptualized in Section 2.5 that an intervening variable can have an impact on a two-variable relationship. Such interaction effect has been illustrated in Figure 2.5. By applying the impact relationship in the data, it enables the identification such moderating effects.

A quotation from the case data in which the impact relationship is applied serves as an example: *"That frustrates once in a while the business people who are saying we did it in a certain way and now IT is forcing me to it differently."*. In this example the coding would show an impact relationship from 'IT consolidation' to 'staff morale' (shown in Figure 5.5).

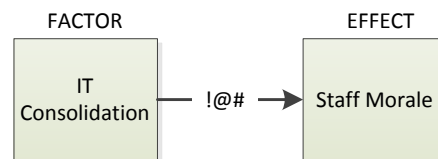


Figure 5.5: Impact relationship is used to code 'IT Consolidation' has an impact on 'Staff Morale'

5.2 Descriptive Summaries

Having elaborated on the preliminary coding procedure, the content of the cases is now described. Following Miles and Huberman an early analysis of the case data has led to descriptive summaries of both cases. The descriptive summaries serve to give a detailed insight into what happened in the cases and how it happened. Hence, the descriptive summaries describe the cases without trying to go into the questions as to how some things have occurred.

Important to note at this point is that there are quotations included that are directly taken from the interviews. In these quotations, all the actual names of the firms have been replaced by [acquirer] and [acquired], and in some cases the quotation has been slightly adapted in order to increase the readability. In any case, adaptations to the original quotes have been indicated with the use of [brackets].

5.2.1 Case I: Airline business

Prior to the merger, the acquired firm has experienced some difficult times in which there were only few opportunities for organic growth. Operating in a highly competitive market meant that the firm had gone through several rounds of cost-cutting and increased efficiency. For about ten years the acquired firm has been looking for a suitable partner to merge with, because they recognize that they will not be able to survive on their own. The acquirer firm on the other hand has been under less financial pressure, partly because they are government funded and partly because they have about 2.5 times the size of the acquired firm, which gives them a more favourable position in the aviation market. When the two parties agree on a deal, it is clear that it is an acquisition, although it is being communicated as a merger. As a reaction on the announcement the acquired firm's staff expresses both relief and uncertainty. They are relieved because they feel more certain about their future prospects and the about organization's well-being, yet uncertain about what will happen to them considering the size of the acquiring firm. Some anxiety exists about being absorbed by the acquiring firm and losing their own corporate identity.

The CEOs of the two merging firms decide that both brands will remain. The main reason for this decision is related to the regulatory context in which fly permits are assigned to national carriers. In a combination of two national carriers it would be hard to demonstrate which permits are assigned to which carrier, which complicates a cross-border merger. Management therefore decides to collaborate on several fronts and benefit from each other's expertise, corresponding to an integration level preservation. 'Integration' is deemed a forbidden term during the entire PMI process. Instead, three phases are defined: coordination, harmonization, and combination, which illustrates the tone of the integration and conveys the integration message. Everything must happen in a 'fair' and 'balanced' way and lay-offs are not a part of the plan. The main message that is given to IT becomes clear from quotation 1:23 below.

"The idea was, up to now and probably also tomorrow, two brands, although if you can make it better or cheaper, do it. But take your time and don't rock the boat. Whatever is good for the business, let's do it. If IT can deliver it without rocking the boat for the business, do it."

Case I - Q11:23
SPOKESPERSON ACQUIRED FIRM

Shortly after the deal is announced the two information departments get together and start discussing enterprise application consolidation. They go into a long process of clustering and coloring in which groups of applications are logically clustered and colored to go to either the acquiring company or the acquired company. This corresponds to the IT integration level standardization in which existing information systems are reused. The decisions regarding the enterprise systems are made purely from an IT perspective e.g. on IT cost reductions, the quality of the applications, and on the capabilities of the IT staff. Quotation 9:51 illustrates how such an IT driven integration plan is difficult to carry out to the business.

"When you look at the coloring it will be [the acquirer's color]. The mistake we have made is that we haven't spent enough time in the business for this. It is not because we say that it is [the acquirer's color], that we mean from a business perspective that the [acquirer] model will be the group model. So the processes we currently implement, the business rules, the organisation, the trade we do, will be supported by the [acquirer] solution, will be decided by IT because the IT solution will be [acquirer] driven. You see what I mean? So the colorisation at the IT level, does not mean at all that there is a colorisation at business level."

Case I - QU9:51

SPOKESPERSON ACQUIRING FIRM

In an early phase of the integration, some common projects are executed which also include collaboration of the IT departments. These projects actually do not integrate currently redundant information systems, but rather develop a new joint program on top of the existing application portfolio. These projects lead to big successes and realize synergy value through scale benefits and resource combination which has a positive impact on the staff satisfaction towards the merger. These projects are characterized by high commitment from the top, a clear vision and strong leadership. Quotation 11:5 shows management's view on selecting a number of quick, easy wins to demonstrate the merger's potential.

"So the real issue is how can you convince quickly the 80%, or at least a big part of the 80%, to get them at the right side of the discussion and have them motivated and get the best out of them for the integration. This was also the background for finding projects in the early start that did not had a large complexity and sensitiveness and had a high percentage for success. So create very quickly early successes so that you can convince people."

Case I - QU11:5

SPOKESPERSON ACQUIRED FIRM

After a period of early victories, the real integration projects are generally difficult and complex. In the IT driven consolidation projects the IT staff complains that the business doesn't want to change or adapt to new processes. Although the system choices have readily been made in the clustering and coloring process, the argument is that there is neither real commitment from the business nor leadership from the top to really achieve the corresponding business consolidation. Collaboration of the two IT departments is desired but highly complicated due to both national and corporate culture differences which result in competition between IT staff to keep the work within their own department. Since projects also involve making changes to two businesses, they are regarded as a very complex and political processes. IT staff therefore prefers to stick to projects that only concern the own firm, which are also challenging in themselves (see quotation 13:21).

"[...] when we do projects only for [acquired], we have really challenging projects. So people like to work on these projects. At this time I have enough work and also challenging work to keep them motivated. What I see is dissatisfying that if they have to work on joint projects there is a lot of politics, a lot of resistance from [acquirer's] IT; for example that they don't want to cooperate [...]"

Case I - QU13:21

SPOKESPERSON ACQUIRED FIRM

At the time the interviews are held (three years after the M&A deal), the results of the actual integration processes are very limited. Despite differences

in integration effects across the business divisions, there is generally a very low level of consolidation on both the business side as well as the IT side. In the business there has been a lot of learning going on. The business processes have been somewhat synchronized where possible, but still no real consolidation. The IT integration is being considered as a failure, which has resulted in high dissatisfaction within both IT departments. Although they had aimed for a standardization integration level, they achieved hardly any consolidation causing IT synergies to remain elusive. The overall financial results on the other hand have been extremely positive due to scale benefits and increased market power. Also the market recognizes the great success this M&A has been, which is in contrast with the results in IT integration. Some of the interviewees state that the low hanging fruit of the integration has now been grasped and that the next steps in the integration will not be so easy.

5.2.2 Case II: Shipping business

Prior to the merger, the acquiring firm is seeking ways to rapidly extend its fleet and realize growth through the acquisition of a competitor. They have prior M&A experience and they seek to absorb another firm, in terms of business as well as IT consolidation. The IT department develops and maintains their own enterprise systems which are continuously subject to a scalability process, meaning that the systems are scalable such that IT should be able to take over any large competitor in five months. The acquired firm has been through some years of high financial pressure, which resulted in a high cost culture and a focus on operations. Just before the merger, the staff is happy and optimistic because their efforts finally pay off; they are in an upturn and have just achieved some financial successes. The moment the firm is being acquired by its greatest competitor, it impacts the staff morale. Although it has been for sale for some time, it comes as a shock to the staff who experience it as a hostile take-over. Quotation 24:13 illustrates this situation.

"Right, if we start with the [acquired] staff they were not happy with the acquisition. They had a very negative feeling towards [acquirer] as a company and in general they didn't understand why [acquired] was sold out to [acquirer]. They were disappointed because the company was just about to get into profits and they didn't understand logically why we were sold out. There was a lot of aggression, a lot of enthegenism, people really felt displaced and not motivated and in fact this was exactly the same on the IT side as well as on the business side."

Case II - QU24:13
SPOKESPERSON ACQUIRED FIRM

It is clear that there will be a full integration. An important argument is that the network-based nature of the industry dictates a quick and complete integration of brands and activities. Very early in the process, the choice for a single set of enterprise systems is made corresponding to an IT integration level take-over. Later on they realize there exist quite some differences between the two IT departments. Where the acquiring firm has its IT infrastructure completely outsourced, the acquired firm hosts its datacenters in-house and has many of its IT activities off-shored to countries such as India. The acquiring firm sees this as an opportunity to acquire highly skilled IT staff and learn from off-shoring experiences.

An important activity that is taking place during the pre-merger phase is the development of a new application suite within the acquiring company. It consists of three modules and is so big that it can be considered an ERP system. Both the development and the implementation of these new modules were expected to be finished at day one of the merger, hence the assumption was made that this would indeed be the case. This assumption turned out to be wrong. At day one, the systems have not yet been fully developed and are not yet implemented. In disregard of the fact that the acquired firm has just finished the roll-out of new enterprise systems, the new acquirer's systems are chosen. The main reasons are the IT system scalability and the fact that the acquired firm has only half the amount of staff, leading to a lower training burden. The decision is made to roll out these new ERP systems to the entire new organization, corresponding to an IT integration level greenfield.

"You know that, it is much broader than an IT system. So we were rolling that out into the [acquirer] organisation and a new system. So nobody knew what the hell they were doing basically on the [acquirer] side. Because you were rolling out a platform that nobody knew."

Case II - QU28:41
SPOKESPERSON ACQUIRING FIRM

Generally speaking, the technical IT integration projects run well-organized. They are characterized by high speed of implementation, a clear vision and commitment from the top, strong leadership, and a strict planning with clear deliverables. The integration is being managed by a separate implementation office that organizes regular update meetings. Within nine months the IT infrastructures are consolidated, which is considered as a very fast integration. However, due to the state of the system development, the new customer service system is implemented only partially. The organization is forced to run with two IT systems in parallel causing many critical issues.

"So when we integrated, [acquirer] had the old system, then we had the new [acquirer] system and then we had the [acquired] system, meaning that I had to manage an integration of 40000 people, 500 vessels, 1.5 million containers in 150 countries but with three IT systems simultaneously. That was a disaster."

Case II - QU28:23
SPOKESPERSON ACQUIRING FIRM

On top of the complexities with the greenfield approach, the integration suffers from staff cheating on education. The available e-learning modules are not taken by everyone and the story goes that a single person in one office takes the tests for fifty people. This causes an even lower user understanding of the system. Meanwhile, there is no interfacing between the new export module and the old import module, it demands additional staff to key in data from one module to the other. Data integrity drops and operational issues directly impact the customer satisfaction. This in turn negatively impacts the staff morale, which is described by quotation 29:33 below.

"The customers [were] not [satisfied with the merger] because they did not get the right service. They got the wrong documents, they got the wrong invoices and of course they were not happy with that. And staff also got frustrated when they could not serve the customers. When you get to a point that people don't want to pick up the telephone because they know it will be an annoyed customers on the line then of course you have an issue."

Case II - QU29:33
SPOKESPERSON ACQUIRING FIRM

Following the PMI phase, the new organization suffers large financial losses. Customers leave, oil prices rise and markets turn from good to bad. Due to the problems that arose during the integration, followed by the financial disaster the M&A is considered by most as a failure. Although management points towards 'implementation issues' as a cause for the integration to fail, the results of the IT integration are generally perceived as very successful. IT integrated the entire IT infrastructure in a record time and also the system scalability worked as they had hoped for. Quotation 18:75 illustrates this discrepancy.

"Later when it got into the press that we had 'failed' we were blamed for a lot of things that in fact didn't had anything to do with it. [...] That had a big negative impact on morale in the IT world. It was really felt as being unfair. We delivered on time, at quality and below budget and yet we were blamed."

Case II - QU18:75
SPOKESPERSON ACQUIRING FIRM

In hindsight, it is argued by many that there were too many moving parts during PMI. Performing a system implementation in parallel to an company integration caused a very low understanding of the intended business processes. Management is blamed by some for a lack of showing – flexibility – in listening to the acquired staff and considering a combination of acquirer and acquired information systems. Others think that the acquirer should have implemented the ERP systems in their own firm first, prior to start the integration process.

5.3 Explorative Displays

From the case data each of the seven initial PMI factors and four initial PMI effects from Chapter 2 has been identified to play a role during the PMI process. This section qualifies each of the PMI factor/effects and highlights the differences between business and IT that were observed in the data. The explorative results are shown in tabular format. The *slanted text* included in the tables are quotes that are directly taken from the interviews and serve to illustrate how the interviewees pointed towards this qualification. Reading through the explorative displays should give the reader an understanding of *what* events happened during the PMI and *why* they happened.

5.3.1 Case I: Airline business

The descriptive display for the airline case is shown in Table 5.1.

5.3.2 Case II: Shipping business

The descriptive display for the shipping case is shown in Table 5.2.

Table 5.1: Descriptive display for Case I: Airline industry, showing the description for each PMI factor and effect and the difference between business and IT.

PMI FACTOR	BUS/IT	DESCRIPTION
Integration level	Bus	<i>Preservation</i> - The two brands will remain separated. The aim is to collaborate and learn from each other, harmonizing the business processes in order to work together but not to consolidate the business. On an organizational level some joint managers emerged, but the departments remain separated. <i>"It was impossible in the first 3 years, to do more than just coordinating the activities"</i>
	IT	<i>Synchronization</i> - Plans were made on how the entire application landscape will be consolidated. For each business cluster IT decides on the choice for either the acquirer or acquired system, through a process of clustering & coloring, and calculates the potential synergies. <i>"This exercise was about what applications should be clustered and the colours were which systems go to [acquirer] and which systems go to [acquired]"</i>
Managerial commitment	Bus	<i>Low</i> - Apart from a highly successful joint project, the management has shown little commitment for the merger. It seems as if they are reluctant to make changes to the business in order to accommodate the integration. The CEOs of both firms do seem to show commitment but most other managerial levels fail on this point. <i>"The business executives, the EVPs of the business , certainly in the beginning, were much less involved"</i>
	IT	<i>Low</i> - For IT, commitment from management is interpreted as commitment from the business. This is generally considered very low. There is a feeling that management is not so interested in IT, that they think IT should take care of its own problems. <i>"IT was not the number one on the agenda, number one there is how to migrate my own business and how to more or less to survive."</i>

Table 5.1: Descriptive display for Case I: Airline industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Speed	Bus	<i>Low</i> - On the business side, there is a very slow integration with low attention for business process integration and only very rarely are departments synchronized organizationally with joint managers. Staff perceives that there is no real effort put into integration of the business. <i>"On the other hand because the project is quite slow, then we also notice in the operation that not a lot is happening."</i>
	IT	<i>Low</i> - It is decided to have a slow pace of implementation, so that staff is able to get to know each other. Synergies are calculated on a 10-year basis. In practice, IT moves even slower because there is no commitment from the business to adapt to systems changes. <i>"In that calculation we assumed a period of around 10 years, but I am not sure if everyone was aware of that assumption."</i>
Staff	Bus	<i>Dynamic</i> - At the start, business staff is generally excited about the merger and is more certain about their employment prospects. During the integration however, some uncertainty arises. Because of a slow pace, staff gets dissatisfied and discouraged because projects are more difficult than expected. This lead to resistance to change and protecting own processes. Cultural differences that exist (such as language) lead to irritation and are counterproductive. <i>"For four years I would say it is a joke, because today we still see that they are protecting their own processes and that the status quo is still nothing has changed."</i>
	IT	<i>Low</i> - The IT staff is uncertain about the future. They are not sure which direction they are moving towards and at what pace. Due to low business integration, they experience resistance from the two businesses to change. The two IT departments are reluctant to collaborate on joint projects because of the complexities and politics involved. There are many cultural differences (e.g. in project management approach), which make the collaboration difficult. <i>"No, we do have a perception monitor and it is, that is for IT very, very low."</i>

Table 5.1: Descriptive display for Case I: Airline industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Expectations	Bus	<i>High</i> - The expectations in the business were that things would go much quicker and easier than they did. <i>"So my personal opinion and also I guess the opinion of other managers was the integration would take not so long."</i>
	IT	<i>High</i> - Management has expectations about IT delivering synergies and within 5 years they expect most IT systems to be consolidated. However, the joint projects run slow and are very complex. <i>"...the expectation would be that we would have all kind of joint projects, but in reality it goes slower."</i>
Communication	Bus	<i>Formal</i> - Communication around the integration is perceived as formal and high-level. Apart from its nature, the communication is arranged isolated between both firms so there was never "one message to all". <i>"...each has their own communication offices, which do the communication to the outside world, but also the whole internal communication."</i>
	IT	<i>Formal</i> - Not much is mentioned about communication in relation to IT. It is noted that communication does not take away IT staffs uncertainty. <i>"Very formal and high level, because the questions of the [IT] staff which they had in mind were/are much more basic"</i>

Table 5.1: Descriptive display for Case I: Airline industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Project management /planning	Bus	<i>Loose</i> - A very broad planning has been made without strict milestones or timelines. After a few quick wins that were identified by top management, the integration was left to the business. The message is, try to do more and more common projects but they didnt specify targets or timelines. <i>"It was quite loose. It was very much a project or process that would leave a lot of room for departments to talk to each other"</i>
	IT	<i>Loose</i> - Apart from the clustering & coloring exercise, there was not much guidance for integration projects. This leads to a very loose approach. On top of that, differences in project management methodologies increased complexity of collaboration. <i>"In a common project they have a different understanding of the way to work. It takes a lot of time if you dont understand your counterpart."</i>
Financial benefits	Bus	<i>High</i> - The new organization has been able to leverage the scale advantage and obtain significant financial benefits out of the merger. One example is the increase in purchasing power that allows for better deals on new airplanes, another example is the optimisation of flight destinations. <i>"If you look at the business today you see it pays off, we are highly profitable up to last year and due to high fuel surcharge levels we are in difficult times but we will certainly be not the first going down."</i>
	IT	<i>Low</i> - The financial results related to IT are very low. There are very few cost reductions that have been realized, only some costs have been avoided so far. Common IT projects have failed in the past. The existence of two parallel IT departments are considered more and more as costly. <i>"If you review our IT budget, it is true that we have increased IT budget by something like 40% in the last 4 years."</i>

Table 5.1: Descriptive display for Case I: Airline industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Consolidation	Bus	<i>Low</i> - Apart from some synchronization of business processes, the consolidation of the business is generally very low. From an organizational point of view, the two firms are only starting to appoint common managers and harmonizing department management levels. <i>"Well in general, it is felt that I would say after the enthusiasm period we have developed into a period where each airline has focused on his own issues"</i>
	IT	<i>Low</i> - Especially when considering the ambitions of the clustering & coloring process, the results of the IT consolidation are very disappointing. After four years, only very few applications have been integrated and there is still a lot of work to do. <i>"I think too little progress has been made so far; I think we could have moved quicker and better if it would have been steered from the beginning by one captain so to speak."</i>
Satisfaction	Bus	<i>High</i> - Customers have been reacting positively to the merger. The slow pace for integration is said to have ensured a continuous focus on the customer, which has resulted in a good customer satisfaction. <i>"The real customers in the passenger business are pretty okay."</i>
	IT	<i>Low</i> - There is not much being mentioned about satisfaction of the IT users, but in general the business shows resistance towards changing IT. Therefore we interpret a low user satisfaction. <i>"I would say no. People are considering (like users and IT staff) this is a no. It is not satisfactory."</i>

Table 5.1: Descriptive display for Case I: Airline industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Opportunities	Bus	<i>High</i> - Collaboration is possible in many different parts of the organization. There is already a lot of learning going on between the two firms, and the opportunities for the future are widely recognized. <i>"You have now quite some buying power because you have large volumes. Deciding on the same supplier, or the same type of equipment, was another thing but if you got in that position you really got the financial benefits."</i>
	IT	<i>Low</i> - So far, the effect of the integration activities have not yet resulted in synergetic opportunities on the IT side. The potential for saving IT costs are recognized, but yet remain elusive. <i>"[...] there were much more projects and opportunities for the IT teams to work together."</i>

Table 5.2: Descriptive display for Case II: Shipping industry, showing the description for each PMI factor and effect and the difference between business and IT.

PMI FACTOR	BUS/IT	DESCRIPTION
Integration level	Bus	<i>Absorption</i> - It is clear from the start that the acquirer wants to fully absorb the acquired firm. There will be a full integration, with no autonomy left to the acquired firm whatsoever. The main goals are to extend the fleet, increase the customer base and gain market power through growth. <i>"Absolutely a full integration. One brand. One company would absorb the other. Totally."</i>
	IT	<i>Single system</i> - The IT organization will be fully integrated. The absorption strategy dictates IT to move towards a single enterprise system. Despite the state of the systems unimplemented and not yet fully developed, the decision to go for the new acquirer IT systems is made very early. <i>"Well, the basic goal was that we should move all the [acquired] systems and staff across to the [acquirer] systems"</i>
Managerial commitment	Bus	<i>High</i> - Top management is committed to fully absorb the acquired firm. The integration team gets quick answers on decisions to be made and business staff feels that there is no other option than to integrate on every level. There are several senior executives that attend various meetings, demonstrating the commitment from the top. <i>"There was sufficient commitment in as much as they were clearly on top of what we were doing in terms of the integration."</i>
	IT	<i>Low</i> - While commitment from the top for the entire integration is high, the business commitment for supporting the IT integration is low. Business executives are being blamed for their lack of focus on IT. <i>"I think that it comes back to the leadership in the [business] areas, they did not support IT sufficiently to make sure that the system would work."</i>

Table 5.2: Descriptive display for Case II: Shipping industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Speed	Bus	<i>High</i> - The speed of the integration was perceived as breathtakingly fast. This decision was driven by the nature of the industry and the level of integration. <i>"Maybe you can say that it went so fast that people didnt see what passed out of the window."</i>
	IT	<i>High</i> - The IT integration was performed at a high speed. The entire IT infrastructure was integrated within 9 months. Due to system implementation issues, the enterprise systems took much longer to implement. <i>"From the announcement until the full integration was from May until February I would say. And I think that is a record time."</i>
Staff	Bus	<i>Low</i> - At the announcement of the merger, the acquirer staff was excited while the acquired staff was disappointed. During the integration, due to implementation issues, business staff was unable to deliver service to the customer. This had a negative impact on staff satisfaction, but they remain cooperative throughout the process. <i>"[Customers] got the wrong documents, they got the wrong invoices and of course they were not happy with that. And staff also got frustrated when they could not serve the customers."</i>
	IT	<i>Low</i> - The acquired IT staff, of which many lost their job in the process, was very unhappy with the merger, nevertheless they behaved very professional and cooperative. Concerning the IT system, they felt as if they went back in time for a few years. <i>"the [acquired] IT side even said we have just wasted 5 or 6 years of our lives."</i>

Table 5.2: Descriptive display for Case II: Shipping industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Expectations	Bus	<i>High</i> - The expectations of management are very high, in terms of synergies that can be realized. For staff, the expectations are that they will be a much stronger organization after the merger. Especially the acquiring firm is very optimistic about the benefits. <i>"People expected a lot more than were it ended. Because of the gigantic potential that we basically saw in it and people still see. The high expectations were on all levels."</i>
	IT	<i>High</i> - Expectations for IT are very rarely discussed. For the acquired firm the expectations are that through this merger they had acquired highly skilled IT staff. <i>"The expectations were simply too high and they underestimated the impact."</i>
Communication	Bus	<i>Good</i> - The acquirer is appreciated for its good communication during integration. Some interviewees characterize it as formal. <i>"And yes, it was formal but also informal in a way that people could ask a lot of questions."</i>
	IT	<i>Formal</i> - For IT most of the communication is formal in the sense that it includes numbers, figures, and details on the progress of the IT integration. <i>"It was pretty formal. Probably it could have been more formal but definitely formal."</i>

Table 5.2: Descriptive display for Case II: Shipping industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Project management /planning	Bus	<i>Strict</i> - The integration is characterized by very strict project management, clear milestones and deliverables, and constant monitoring of progress. There is a separate integration office that coordinates the process and is responsible for the achieved results. They have a very exact time schedule and people are really held to their targets. <i>"We had a very structured approach to it because this is also the way we do it normally."</i>
	IT	<i>Strict</i> - Similar to the business integration, the IT integration is also characterized by clear project management and a strict planning. There are many milestones defined for IT that are also reached on time and within budget. The IT infrastructure is integrated according to plan and within 9 months. <i>"So we also had a quite tight follow up on KPIs and traffic lights of the progress. I think the follow up was quite tight."</i>
Financial benefits	Bus	<i>Low</i> - The integration activities have greatly impacted the financial situation of the new organization in a negative way. Customers were unsatisfied, rates had to be reduced, and additional costs were made due to systems implementation issues. <i>"[...] by reducing the rates they of course decreased the revenue and they ended up in a negative spiral with reduced revenue and delivery problems."</i>
	IT	<i>High</i> - Despite a significant increase in headcount for the new organization, the IT budget only increased by about 10%. Many financial benefits were achieved by the full integration of all IT activities and infrastructure. <i>"We were able to get many synergies and reduce the infrastructure and so on, so it has been a positive thing. "</i>

Table 5.2: Descriptive display for Case II: Shipping industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Consolidation	Bus	<i>High</i> - A significant result of the PMI is that the business have become completely consolidated, and that the staff of the acquired firm is present at every level of the organization. There are no duplication within the organization whatsoever. <i>"No, I don't think I can come up with something that is duplication. So I would say it is pretty close to 100% if it is not 100%."</i>
	IT	<i>High</i> - Despite the issues that the system implementation caused, the entire IT landscapes have been fully consolidated. The closing down of the acquired systems happened within a short amount of time. <i>"Yes, I would say so. Certainly in the center. I think that happened very quickly at the IT side."</i>
Satisfaction	Bus	<i>Low</i> - Due to many issues in the system implementation, customer have been increasingly dissatisfied. At the time of the interview it is slowly recovering, but during the PMI there was certainly dissatisfaction from the customers. <i>"And then externally lots of frustration from customers. They either won't get the attention, we didnt get the invoice right, why do we keep rolling their cargo, and by the way we still have a lot of that today. "</i>
	IT	<i>Low</i> - Users of the IT systems had significant problems with the IT implementation. During the PMI, there were parallel systems active and there was duplicate information all around, which has resulted in a low user satisfaction. IT is sometimes being blamed for other integration issues as well. <i>"Because when the business was under pressure and they had to go to their customers and they are not delivering the results, they say it is because of the system. I can't get it done because of the system."</i>

Table 5.2: Descriptive display for Case II: Shipping industry, showing the description for each PMI factor and effect and differences between business and IT. (continued)

PMI FACTOR	BUS/IT	DESCRIPTION
Opportunities	Bus	<i>High</i> - Overall, the new organization has been able to benefit from each other's experience. The acquiring firm could learn from the process maturity of the acquired firm, and set up an entire process excellence department to benefit from this opportunity. <i>"We have since then implemented the process excellence department, it has several hundred staff now."</i>
	IT	<i>High</i> - In terms of technical expertise the merger created a lot of opportunities for the acquiring firm, since the acquired firm had much more highly skilled IT staff. IT was also able to obtain far better deals from their IT vendors, due to size advantages. <i>"I would say that the completion of the roll out of IT systems has given us a fantastic synergy and reduction of costs."</i>

5.4 General Remarks

During the early data analysis and preliminary coding, some insights have shown inconsistencies in terms of relationships. Not all interviewees agreed with each other on certain aspects. Such inconsistencies are mainly caused by a different view on - or different perception of the entire M&A process. Although they did not negatively impact the outcome of the data analysis, it is nevertheless useful to address them prior to evaluating the within-case results. It is assumed they have provided a more holistic portrayal of the complexities that occur in a merger. A number of interesting statements mentioned the interviewees' perception of success or failure. In contrast to measurable outcomes like financial benefits, such success perceptions are hard to measure. However, perceptions of success can also help to understand how the post-merger integration has succeeded or failed to reach its goals.

Acquirer vs. Acquired Perception

It should be noted that in the interviews there exists a different perception of the two firms of a number of things. In general, we see that the deal is perceived by the acquiring party as a merger - in the sense that, they aim at a fruitful collaboration, retain staff, etc. While the same deal is perceived by the acquired firm as a take-over because they feeling that they have bought and that they therefore have to obey to the new organization's management. Statements that are related for example to satisfaction of staff, or to management's approach of the integration, can differ between acquirer and acquired. For this

reason, the quotations in this report have been enriched with this information.

Top Management Perception

Although top level management in the cases is greatly concerned with the morale of the staff, it is clear they do not experience staff morale on the work-floor themselves. The interviews show that they can therefore more easily take decisions that negatively influence them while lower level managers are shown to display a more emotional approach when it comes to decisions impacting staff morale. Furthermore, there is a tendency for executives to focus on the positive developments of the merger and to emphasize the difficulties that have been overcome and the successes that have been achieved. In that sense, they generally show a more optimistic view to the merger than do lower level managers.

Business Divisions' Perception

In both cases, the old and new organizations are globally operating in multiple segments of the market. This brings forth a difference in perception between operating branches of the organization. For example, in the airline case there were three distinct businesses. For each business, different synergies targets were defined - which lead to a different view of managers on IT integration and integration activities in general. The impact of factor/effects is therefore seen to vary across the business division.

Chapter 6

Within-Case Analysis

This chapter focuses on understanding how the relationships between concepts within each of the two cases have occurred. The goal is to find explanations on how the observations from the explorative displays in Chapter 5 are interlinked with each other, enabling to understand *why* the events in the cases happened as they did. Why are the qualifications belonging to the PMI factors and effects as they are? In order to answer such questions and to prepare for the cross-case analysis in the next chapter, the extensive preliminary coding is first reduced to a smaller fixed coding scheme. The challenge in this phase is to find the right level of analysis in order to be able to generalize across cases, but also to not lose the case specific information. After this section, the procedure of coding is explained. A number of new insights will be shown and how this has affected the conceptual model. This chapter is concluded with the presentation of within-case explanatory displays to show the relationships between the different concepts from the model.

6.1 Coding

The goal of preliminary coding in the previous phase was to be able to make a description of the cases in which the *what* and *how* questions could be answered. The result in Atlas.TI was an extensive network of over 200 codes per case, and factor/effect relationships that were capable of producing a descriptive understanding of the both cases at a very detailed level. However, it was clear that in order to really understand why the relationships were occurring as they did on a more generic level, and to understand how different aspects contributed to the entire PMI, there was a need for a second round of coding. The level of abstraction in the preliminary case coding was too low and the level of detail still too high for drawing such conclusions. This section therefore describes the second and final round of coding. It discusses developments on the preliminary code families and adaptations from the initial factor/effect model. This chapter presents the final coding scheme, and highlights the case specific codes that were used to come to the final within-case analysis.

The process of determining the final coding scheme has been of an iterative character together with the coding process itself. Each time adaptations were made to the coding scheme, it was applied in a round of coding and new in-

sights that were drawn from the coding were fed back into the coding scheme. This approach has allowed for trying out multiple ways of clustering the data. This section presents the outcome of this process.

6.1.1 Code Families

Going from a fine-grained coding procedure in the early data analysis stage to this set has had an impact on the level of detail that could be maintained in the case coding. Where the preliminary contained seven distinct code families (see subsection 5.1.2), it was recognized here that the scope that was set for this research does not allow for consideration of all these different concepts. The number of code families has therefore been reduced to two: factor/effects and outcomes. Below is a description of all the initial code families and how they have contributed to the research.

Context

It should be noted that the initial research model, that was used to conduct the case interviews, had a different view on factors and effects. Initially, the research model included pre-integration factors which were defined as a kind of preconditions: factors that could be identified before the post-merger phase started and had to be managed throughout the process. The use of this definition has had an impact on the content of the case data and hence the information that was available from the interviews. The interviewees were specifically asked to assess the state of each of the seven factors *at the time of the merger*. This makes quite an important distinction between the 'state' of a PMI factor *before* the integration and *during*. This has been an important motivator to apply the 'Context' code family in the preliminary coding phase. The other motivator has readily been highlighted in subsection 5.1.2 - which was the presence of contextual aspects.

However, in the second round of coding it was found that this distinction between the state of a PMI factor measured at different times is a universally applicable concept across PMI factors and effects. It shows that the modeling by means of *pre-merger* factors and *post-integration* effects attempts to give a far too simplistic representation of what actually happens in the cases. Rather, PMI factors start out with a qualification which changes continuously over time, leading to PMI effects, which in turn can influence the state of other PMI factors. This is an important change in concept of the PMI factors and PMI effects, which will be discussed in more detail in the Factor/Effect section below.

On the topic of the 'Context' code family, two conclusions are drawn: (1) it was found that early qualifications are simply a starting value for each PMI factor rather than part of the integration context, and (2) contextual aspects are not in the scope of this research. It was therefore decided to omit the context code family from the coding scheme. However, there are a few contextual aspects that are found to be extremely relevant to describe the separate cases. For this reason, a small number of context codes has been preserved in the final codes. This codes are further discussed in subsection 6.1.5 on Case Specific Codes.

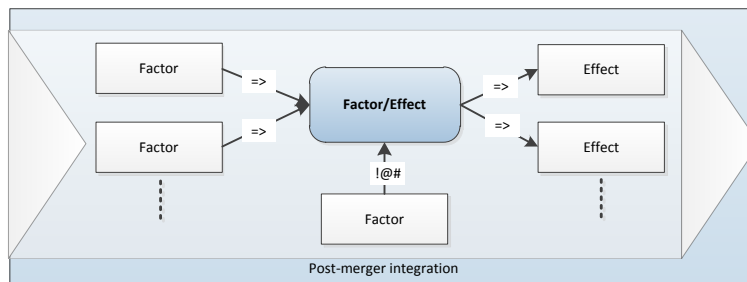


Figure 6.1: A conceptual illustration of the interchangeability of factors and effects.

Factor/Effect

One of the most important observations regarding the coding process has been that not only factors lead to effects, but also that effects can - in turn, also lead to another effects. Within the initial model of factors/effects this generally implies that effects also play the role of a factor. Hence; the entire concept of factors and effects being longitudinally distinct, vanishes altogether. Factors equal effects and effects equal factors. The only difference lies within the direction of the causal relationship, which only moves from a factor to an effect. In practice what this meant for the coding scheme is that **any** PMI factor or PMI effect that was identified in Chapter 2, could be coded as either being a factor (causing something else) or as an effect (being caused by something else).

It is noted that the foundation for this idea has been laid in the preliminary coding phase, in which this property of PMI factor and PMI effects was already introduced. The second round of coding however has built further on this idea and it has been demonstrated to substantially increase the understanding of the relationships between factors and effects. Observations related to the 'Context' code family described in the previous subsection, as well as related to the 'Outcomes' code family have all contributed to a stronger support for applying this change in concept, as will be demonstrated throughout this chapter. In the coding procedure the factor/effect codes have been preceded by either 'Factor:' or 'Effect:', depending on the role in the relationship. Figure 6.1 serves to illustrate the change in concept: the interchangeability between factors and effects. Recall that the => symbol is used to indicated causal relationships and !@# is used for the impact relationship. The figure shows how there are factors that lead to, or have an impact on a factor/effect - there that the factor/effect itself can lead to effects. Note that the depicted factors and effects can in themselves also be factor/effects - but for the sake of simplicity, these relationships are not included.

Outcome

The 'Outcome' code family was used in the preliminary coding to make a distinction between the value of a PMI effect during the process and the value at the the time of the interview. Again, this demonstrates the fact that effects do not only appear at the end of the PMI phase. Rather they have a continuous

value and possibly impact other factor/effects during the entire integration process. In the second round of coding, the decision has been made to omit the use of outcomes as they have been defined in Section 5.1. There was no relevant use for maintaining the distinction between an effect during the process and an outcome at the end of the process, for it is only the moment of measurement (time of the interviews) that determines the state (qualification) of the effects. All the previously coded outcomes, have therefore been merged with factor/effects as 'Effect:'.

However, the code family 'Outcome' has been maintained for one other reason, which is the success or failure perception of the interviewees. It gives an interesting insight into the cases when considering the success or failure of either the business integration, the IT integration, or the merger as a whole. It also gives an idea on how to position certain quotations within the case context. The outcomes will be used in the cross-case analysis of Chapter 7.

Impact

Different types of statements have been coded with the 'Impact' code family, all of which somehow represented reciprocation between business and IT. Recurring themes in these codes were 'business integration', 'IT integration', the 'integration process', 'business processes', 'business consolidation', 'IT consolidation', and 'implementation issues'. Because this code family was subject to diverging quotations that were hard to classify, there have been several solutions for splitting up this code family into smaller pieces that are easier to process.

First, three new codes were created: 'IT integration', 'Business integration' and 'Integration process'. In combination with the impact relationship, many of the quotations could be categorized into a statement such as 'business communication has an impact on the IT integration'. Such information wasn't suitable for coding a causal relationship, but nevertheless contributed to the understanding of business and IT reciprocation. Second, new factor/effects have been added to the list of seven plus four factorseffects in order to be able to code statements with causalities. These new code will be further elaborate in subsection 6.1.3. Thirdly, by applying the new concept of factor/effect it allowed for using 'consolidation' as a factor rather than only an effect. It is clear that consolidation can be an effect from PMI, both from an business as an IT perspective (see Literature Review) - nevertheless, the data showed that a low or high level of consolidation can lead to other effects. Hence, the application of the new factor/effect concept has solved an important issue: the issue of coding more complex reciprocation between business and IT.

Measure

The case data showed no added value for making use of the code family 'Measure' that described the use of (project) targets. It only contained isolated codes, in the sense that it did not have a relationship to any other concepts. Part of the coding has been omitted in the second round due to this insight and another part has been included in the 'project management' PMI factor/effect.

Previously Defined Objectives

A few relationships could only be understood by considering the objectives set by management in a pre-merger stage. The data showed however that these previously defined objectives did not have a relationship with factor/effects during the PMI. There were no causal links present, rather it were isolated statements that helped to illustrate the integration context. The influence of the objectives during the PMI has found to be limited, therefore this coding family has been omitted from the coding scheme.

6.1.2 PMI factor/effects

Recall from Chapter 2 that the initial model from Schonewille and Bouwman contained seven PMI factors and four PMI effects in order to describe the reciprocation between business and IT. In the coding scheme, all seven factors and four effects have been included together with the new concept of factor/effects. There are some additional insights that were gained from both rounds of coding about the application of the factor/effects coding. This subsection serves to discuss those factor/effects that lead to a new understanding of their scope.

Staff

Staff is the most reoccurring theme throughout the interviews when looking at relationships. The most obvious reason for this observation is that people seem to have an good understanding of what causes the condition of staff to change. This is both true for business and IT staff. There are two main dimensions on which staff is discussed. The dimensions that were encountered are: (1) staff cooperation versus staff resistance, and (2) staff satisfaction or staff morale. The distinction between those two dimensions has been maintained in the second round of coding. Another concept that was encountered during the preliminary coding stage is 'staff unity'. This code was used in statements where the feeling among staff of being a single organization was mentioned. In the second round of coding however, such statements have been interpreted as part of the organizational integration, hence related to business consolidation.

Managerial commitment

Managerial commitment was identified from literature as an important factor in both M&A literature, as well as in IT integration literature. In the cases however, there is generally a single management organization that is expected to show commitment or support for the integration. It is therefore hard to separate managerial commitment for business from managerial commitment for IT. Interviewees generally speak about 'commitment for the merger' or 'commitment for the integration'. Such statements are therefore contributed to commitment for the entire integration. There is an additional observation though, which is that in both cases interviewees speak about business commitment - by which they indicate commitment from the business (be it at any organizational level) to change or adapt to the novel IT systems. 'Business commitment' has therefore been defined to represent the IT counterpart of managerial commitment. Hence, managerial commitment for the integration is a business related

factor, and business commitment for the IT integration is its IT related counterpart.

Communication

Although communication is regularly mentioned in the literature as a factor of importance, this was not reflected by the case data. There were very few interviewees that mentioned communication in relation to other PMI factors. On top of that, the data showed that there does not exist an IT counterpart of communication. The literature points to communication in both M&A literature and EI literature, but data showed that in the combination of M&A and EI there does not exist a noteworthy difference between business and IT communication. The difference has therefore been omitted in the second round of coding. Furthermore, the relationships from communication to other factors or effects has been negligible.

6.1.3 Code Additions

In addition to the factors and effects from the literature study, the case data pointed out two additional factor/effects: process clarity and implementation issues, which could both be identified in the two cases. In order to understand the reciprocation between business and IT in the cases, there was a need for a factor that could describe problems related to business processes. In both cases, interviewees stated that processes are a very important interface between business and IT. The data pointed out that having these processes well-documented and harmonized throughout the new organization, is key to a successful integration process. Implementation issues were mentioned in both a business context and an IT context, and it is observed that there is also an impact between business and IT. The next subsections argue for the use of both factor/effects.

Process Clarity

A PMI factor/effect that has been identified in both cases relates to the business processes of the new organization. The data show that when considering the IT integration within a post-M&A context, the definition and clarity of business processes plays a key role. This factor has been named 'Process Clarity' and it includes any aspect that relates to the ambiguity around the 'new processes': the business processes of the new organization. Interestingly, the business processes seem to constitute the interface between business and IT integration. The next chapter will elaborate more on this observation. Due to this, process clarity does not have a distinct business and IT counterpart, but does have implications for both.

From a business point of view, process maturity can be interpreted as an indication of the level of process clarity. The maturity describes the degree to which business processes have been thought out, and documented throughout the organization. Especially an acquiring firm can benefit from a high level of understanding their own business processes, because in a business integration they are possibly required to roll out their processes into the entire new

organization. The link with information systems is obvious, considering that IT systems are supposed to support these business processes.

From an IT perspective, the degree of process clarity has an impact on the amount of resistance that IT can experience. Having clearly defined common processes leads to very little ambiguity about the IT solution. A higher level of process clarity is therefore related to having fewer system implementation issues, because IT is better equipped to develop and to roll out the new systems.

A few quotations serve to illustrate the application of 'process clarity' as a PMI factor:

"One thing should be added and that is that where you want to achieve a certain level of IT integration, the business processes are not properly aligned yet."

Case I - QU15:31
SPOKESPERSON ACQUIRING FIRM

"If you take the business processes into considerations, basically it was a precondition for the applications to have them in common as well. Without the combination of business processes it was impossible to have common applications."

Case I - QU17:12
SPOKESPERSON ACQUIRING FIRM

"So what we have underestimated was the fact that we had a lot of new colleagues coming in, but we didn't know our processes well enough but also we didn't know our products very well and didn't know our systems. "

Case II - QU22:18
SPOKESPERSON ACQUIRING FIRM

"As an organisation, [acquired] was more mature in the sense that [acquired] had their processes properly described end to end. We had a distinct lack of that knowledge in our organisation."

Case II - QU25:40
SPOKESPERSON ACQUIRING FIRM

Implementation Issues

Almost inevitable in any major change in an organization, there will be issues arising. It is no surprise that such issues will influence the success or failure of the foreseen changes. However, from the data it is clear that implementation issues as visible in the case data, play an important role in understanding the reciprocation between business and IT. It is noted that this factor/effect does not fit a qualification but rather implementation issues are present or not.

Business implementation issues can be caused by failing to integrate the two organizations - or similar departments. An example can be failing to properly integrate a customer service, or integrate two sales departments. It are effects that can for instance cause customers to end their customership and damage the entire integration. The observation that management's decisions

are still fragmented throughout the new organization, is another example of business implementations issues.

IT implementation issues on the other hand, have a very clear definition which can be described as IT system issues. Problems with the ERP systems are known to be a major determinant for properly conducting a business. If such issues arise during an IT integration in a post-merger context, it demonstrates that such issues do not only occur because of technical failures but can be caused by interesting ways of business/IT reciprocation. Section 6.2 will elaborate further on this.

A few quotations serve to illustrate the application of 'implementation issues' as a PMI factor:

"Because also there is not a joint CIO yet, so you always need to go to two persons and when they cannot come to a joint decision then it is difficult."

Case I - QU13:15
SPOKESPERSON ACQUIRED FIRM

"Because when the business was under pressure and they had to go to their customers and they are not delivering the results, they say it is because of the system. I cant get it done because of the system."

Case II - QU19:33
SPOKESPERSON ACQUIRED FIRM

"However, the system problems had a big impact on this and we had to increase headcount to cope with the situation. This ended up in a negative development looking at the financials."

Case II - QU21:14
SPOKESPERSON ACQUIRED FIRM

6.1.4 Coding Scheme

Having discussed which of the code families have been used in the second round of coding and which new additions to the factor/effects codes have been made, this subsection continues to present the final coding scheme that has been used in the within-case analysis. The scheme is shown in Table 6.1. Included in the table is the separate business and IT interpretation of the factor/effect. Recall that the case data has pointed out that both 'Communication' and 'Process Clarity' do not have a separate business and IT counterpart, but rather play a role on a common level. All the changes to the initial model that have been discussed thusfar are included in this coding table. The next step will be to use these factor/effects to indicate relationships between each other, and see how business and IT factor/effects have an influence.

6.1.5 Case Specific Codes

Through the development of a common coding scheme it became clear that certain key situations in the post-merger integration were case specific, but nevertheless they can played an important role in the process. Therefore a few

Table 6.1: The final coding scheme that has been used to code the case interviews in order to find relationships between them

Factor/effect	Business related	IT related
Staff	Business staff	IT staff
Speed	Integration speed	Implementation speed
Communication	Communication	
Project Management	Project management	IT project management
Managerial Commitment	Managerial commitment	Business commitment
Expectations	Merger expectations	IT expectations
Integration Level	Integration level	IT integration level
Financial Benefits	Financial benefits	IT financial benefits
Satisfaction	Customer satisfaction	User satisfaction
Consolidation	Business consolidation	IT consolidation
Opportunities	Opportunities	IT opportunities
Process Clarity	Process clarity	
Implementation Issues	Business implementation issues	IT implementation issues

extra codes have been preserved from the preliminary coding phase into the within-case analysis, to be able construct the full case specific explanations. Before moving on to the explanatory displays, this subsection elaborates on the case specific codes that may appear in the displays.

Case I: Airline business

What has proven to be specific for the airline case, is the difficulty that was experienced in bringing the two organizations together. One part of the explanation for this is related to national differences between staff. Furthermore, there were difficulties in setting the right goals for integration in terms of where do we want to go. Three case specific codes below reflect this situation.

Cultural differences Cultural differences between organizations in a cross-border merger have thusfar been left outside the scope of the research. It is noted here that cultural differences did play an important role in the airline case. It can complicate the collaboration because the distinction in nationality creates a natural barrier towards an full organizational integration. For example, conveying a common integration message is difficult because in different cultures, different interpretations are given to communication.

"Yes, that is also the case. We experience that every day and during every meeting and workshop. [Acquirer] like the details and deep dive and argue about technical aspects probably the [acquired] like more the general and global view and come up quickly with a certain direction and rely on experts to deal with the project."

Case I - QU3:20
SPOKESPERSON ACQUIRING FIRM

Leadership In the literature study, factors concerning commitment, support and participation from top management, integration management, and business management have all been merged into a single PMI factor. The data, however, pointed to a whole range of different levels on which to judge the role of management. In the airline case, it is noted that managerial (or executive) commitment is often interpreted as the degree to which management is supportive in their communication towards staff. Having a high managerial commitment is perceived similar to saying "yes" to the question "Are we going to integrate?". However, having an answer to the question "How are we going to integrate?" is perhaps of even higher importance. In the airline case, it has been clear that there is an absolute lack of a vision on how to do the integration and there is a lack of making decisions regarding the integration. These two important features are part of the factor/effect 'Leadership' and indicate that - although the commitment is there, there is a low degree of leadership.

"this has to do with people who don't want to let go, that's one thing, people don't want to let go. It's their territory and there is no uniform leadership management, because there are still two sides. "

Case I - QU5:42
SPOKESPERSON ACQUIRED FIRM

Language barrier Speaking two different languages has shown to be a important factor in post-merger integration. In the airline case, the data suggest that settling on a common language (English) can create tension between staff and hamper the collaboration. Certainly when there is one of the two parties that masters the language better than the other, it can magnify the resistance towards change in the organization. Because these cultural differences have not shown to play a role in the shipping case and because they tend towards contextual aspects, they have not been included in the coding scheme.

"A weak point was that we underestimated the cultural differences, which initially was seen as a little difference. In the end it impacted the way we talk to each other, the way we understand or misunderstand each other, that was underestimated."

Case I - QU15:15

SPOKESPERSON ACQUIRED FIRM

Case II: Shipping business

In the shipping case many problems with the integration occurred in relation to the consolidation of IT systems. Identified by many interviewees as the main cause of negative effects, has been the state of development of IT systems and the complexities of the projects as a result of this situation. Two codes have remained from the preliminary coding in order to keep these insights in the explanatory displays.

State of IT systems A contextual aspect that is case specific but played a of key importance role in the success of the shipping case has been the state of the IT systems prior to and at the start of the PMI. Many interviewees say that the state of development of the new IT systems in the shipping case has accounted for many issues in the entire process. For a complete overview this code has been preserved in this phase of the analysis.

"I should mention one that we brought very clearly to the steering committee in the beginning and that was the fact that we were in the middle of rolling out a new customer service system"

Case II - QU25:14

SPOKESPERSON ACQUIRING FIRM

Project Scope Typical for the shipping case has been that a new ERP system should have been rolled out in parallel to the integration. This combination of projects has become a complex and difficult process to manage. Many interviewees mention that there were too many things going on at the same time, by which they mean an ERP implementation on top of an post-merger organizational integration.

"You can see that there were just too many moving parts for end-users to really understand"

Case II - QU24:23
SPOKESPERSON ACQUIRED FIRM

6.2 Explanatory Displays

In this section the events that took place in the cases are explained. The descriptive summaries and displays from Chapter 5 have been used as a starting point for this analysis. At this point, the focus is shifted to those factor/effects that have been identified as most relevant during the PMI. The approach is to explain what has caused the qualification of the specific factor/effects, and what their impact was on the other factor/effects throughout the process. In order to explain the events and understand factor/effects relationships, overall causal networks are created that have been derived from the available codes and relations. These causal network contain chains of causality, showing relationships between multiple variables. From these causal networks the most relevant observations are highlighted, supported with network diagrams, and further elaborated with the text that follows. It is noted that these causal networks truly demonstrate the complex interaction effects between business and IT.

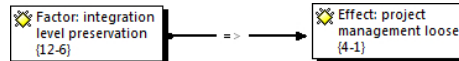


Figure 6.2: Example of a two-variable relationship as coded in the interview data and used in the within-case analysis

At this stage of the research it is noted that in the within-case analysis, it has been extremely difficult to identify moderating relationships such as conceptualized in Section 2.5. Nevertheless it was argued how deeper insights could also be obtained by considering either chains of causal two-variable relationships, or combinations of two-variable relationships (see Figure 2.6 and 2.7). Therefore, the building blocks in this Section will be causal and impact two-variable relationships as elaborated in Section 5.1. Hence, such relationships are combined in this section to demonstrate interaction effects. The most basic two-variable relationship is illustrated in Figure 6.2. In this figure, the codes are accompanied by two numbers (displayed as {x,y}) which represent the grounding and density of the code respectively. Note how the adapted factor/effect concept contributes to the creation of more complex interaction effects described in the following subsections.

6.2.1 Case I: Airline business

A network of causal relations for the airline case is shown in Figure 6.3 and clearly shows the interaction between different factor/effects. This network

is used both to explain how different key factor/effects in the post-merger integration relate to each other, as well as to demonstrate business/IT reciprocation in the airline case. Note that the lefthand side of the causal network shows business related factor/effects and the righthand side shows IT related factor/effects. The causal network shown here is one of many two-variable chains that can be constructed but it is constructed to give the most insight in the interaction present in the case. In this subsection, the key parts of the causal network will be discussed step by step.

Integration Level

Recall from the descriptive summary in subsection 5.2.1 that there was a regulatory context in the airline case that basically set an upper limit to the integration level that could be reached. This integration level is best described as 'preservation', the preservation of the two brands. However, there are some indications that point towards a more symbiotic approach (e.g. considering the IT integration level). This ambiguity has played an qualifying role in the post-merger integration.

Integration level preservation leads to loose project management

The message that was carried out to the organization was *not* to integrate, but rather to look for synergies without integration. Two words that were key in the integration approach were 'fair' and 'balanced'. Therefore, there were no strict targets defined in terms of milestones or deadlines. This illustrates the first causal relationship, which is reflected in quotation 1:23 and visible in Figure 6.4: integration level preservation leads to loose project management. There also have been interviewees that stating that the integration level preservation has lead to 'opportunities high', 'speed low', and that the integration level has an impact on 'communication' and the 'IT integration level'. From quotation 1:23 below, it also is clear how the decision for a cautious integration leads to a loose project management for IT.

"The idea was, upto now and probably also tomorrow, two brands, although if you can make it better or cheaper, do it. But take your time and don't rock the boat. Whatever is good for the business, let's do it. If IT can deliver it without rocking the boat for the business, do it."

Case I - Q11:23

SPOKESPERSON ACQUIRING FIRM

IT integration level standardization leads to loose IT project management

The clustering & coloring process on the IT side has played an important role, because for each business cluster a common IT application was chosen - however, there have not been concrete targets or deadlines to meet in order to achieve the implementation of these common applications. Hence it is not so much the IT integration level itself, but more the way it is carried out that is important here. A clear relation can be observed considering the message that was carried out about the integration being 'fair' and 'balanced'. The decision to consolidate all IT applications without further involvement of the business has thus lead to a very loose way of project management. This relationship is

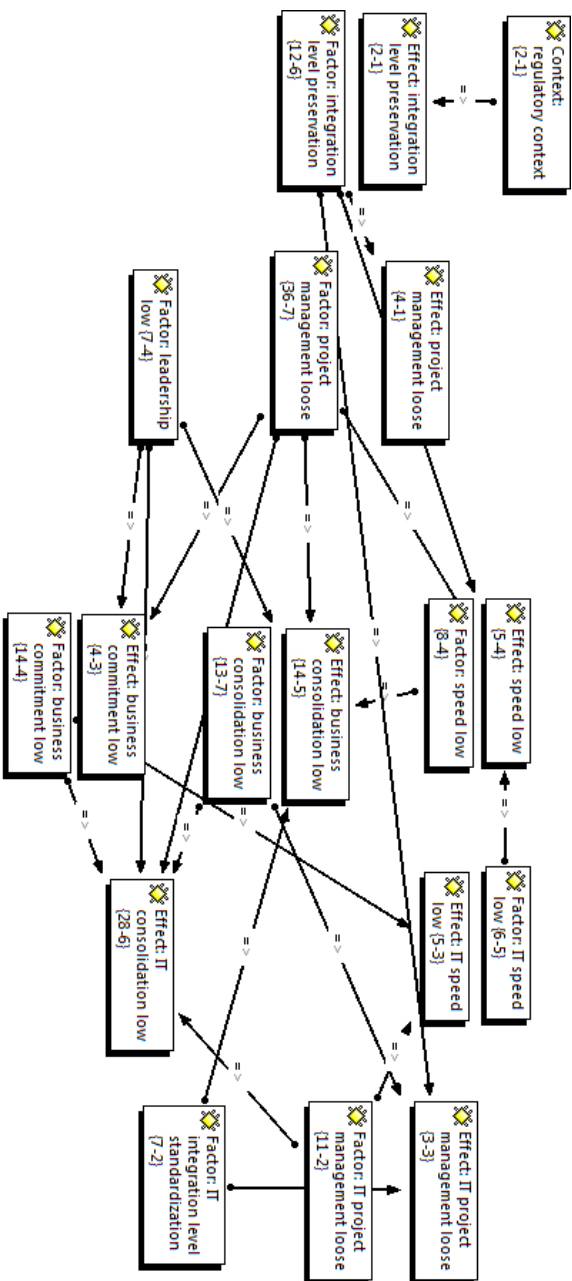


Figure 6.3: Case I: Causal network for the case in the airline business. On the lefthand side are business related factor/effects and on the righthand side are IT related factor/effects. This network diagram shows a selection of concepts and relationships that are the most relevant to explaining reciprocation between business and IT.

illustrated in quotation 13:4, and the network diagram for the IT integration level is shown in Figure 6.5.

"Yes, because during the merger it was said defining the applications these become [the acquirer color] and these become [the acquired color], the decision for e-business was [the acquired color], so we had to go to more joint applications, also [acquirer] was going to use our applications, but that was not a very concrete goal."

Case I - QU13:4
SPOKESPERSON ACQUIRED FIRM

Mismatch integration level for business and IT

It observed that there are two separate tasks being given to business and IT. The business is told that there will be no radical changes, both of the brands will remain, lay-offs of staff is not part of the plan, and the word 'integration' is not to be used. On the other hand, IT is told to get together and make a plan how to consolidate the entire application landscape. Although they are also told not to shake things up, the final goal is to have 70% of all IT completely standardized. Quotation 2:48 illustrates how this is perceived as a mismatch between business and IT. The mismatch that is happening here is an important observation in explaining complexities in business/IT reciprocation and the cross-case analysis to this in the cross-case analysis.

"That is the starting point of the board, that if we start with, we are still two separate companies and that makes merging quite complicated, because you have to serve, to deliver one system to two different users."

Case I - QU2:48
SPOKESPERSON ACQUIRED FIRM

Project Management

It is clear what approach management had towards the integration, now it is observed how this loose approach to project management is associated with other factor/effects. Throughout the interviews a loose project management is associated with 'bad' leadership from the top, with having no vision on how to integrate, and with a low decisiveness. Such statements mostly tend towards negative relationships in this context but there are also interviewees that highlight the positive side of a loose approach, such as high satisfaction level of staff.

The loose approach to project management is seen by some interviewees as the main reason for the disappointing results of the integration (see quotation 1:13). To understand how they got to this opinion, it is noted that the loose project management approach has led to a low speed of integration, a low commitment from the business the change, and a low cooperation from staff - see Figure 6.6. These relationships are discussed next.

"In that sense [the integration] completely failed, at least from an IT angle. And why, because there was not one group vision how to manage the processes."

Case I - QU1:13
SPOKESPERSON ACQUIRED FIRM

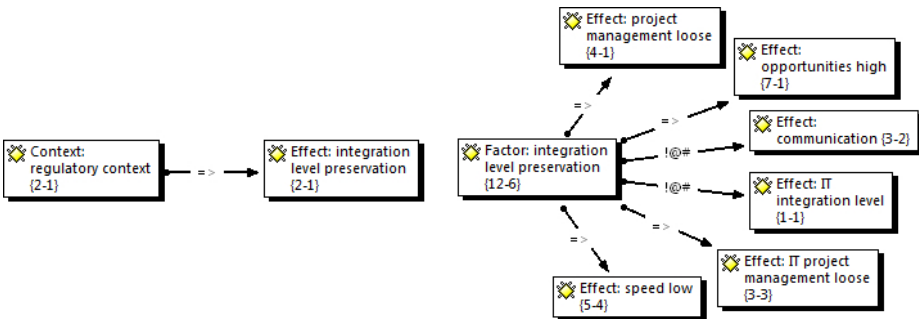


Figure 6.4: Case I: Relational network of the business related factor/effect integration level

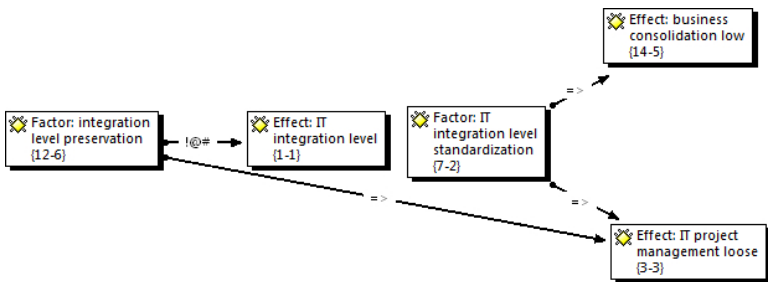


Figure 6.5: Case I: Network diagram of the factor/effect IT integration level

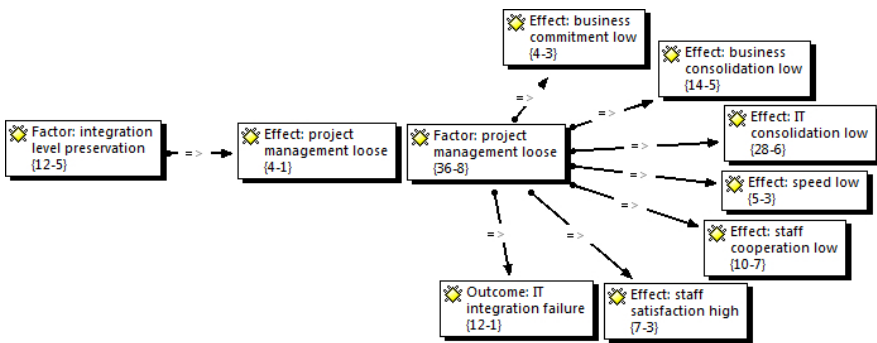


Figure 6.6: Case I: Network diagram of the business related factor/effect project management

Loose project management leads to low integration speed

Taking a loose approach to integration without defining milestones and deadlines that have to be met, the post-merger integration will progress only in a slow pace. The timelines on which synergy targets have been defined are in the order of 10 years. See quotation 12:27.

"These things take time, in particular organisational integration, they have long implementation times looking at unions etc. The decision making is not easy. I expect for the whole group it will take quite a while."

Case I - QU12:27

SPOKESPERSON ACQUIRED FIRM

Loose project management leads to low staff cooperation

Although some say that a slow pace is good for the staff satisfaction, other interviewees have said that the loose approach has lead to resistance from staff towards the integration (see quotation 4:14). The logic behind this causality is that in the absence of a clear plan and clear management decisions, staff tends not to move at all and to protect their own ground.

"[...] the merger should have been totally different. By imposing very decisions and actions. The more time you give, the more room you create for emotion and resignation and by that create resistance."

Case I - QU4:14

SPOKESPERSON ACQUIRING FIRM

Loose project management leads to low business commitment

On top of cooperation from staff, it is also important to have commitment from the business in order to implement change. This is a clear example of reciproca-tion between business and IT, because IT needs commitment from the business to consolidate the two application landscapes. Taking a loose approach to integration has caused the business to have no incentives to adapt to changing IT systems. This has made the implementations of common IT systems extremely difficult in the airline case. Quotation 1:31 taken from an IT related interviewee illustrates this problem.

"I think the business assignment has been too relaxed, of course they had to do their own inte-grations, but they never took IT as a serious subject."

Case I - QU1:31

SPOKESPERSON ACQUIRED FIRM

Low leadership leads to low business commitment

In the airline case loose project management is generally associated with low leadership, because the staff feels that there is no one in the organization that really makes the tough decisions and forces them. The changes needed for in-tegration are therefore left decentralized for the organization to make. Quota-tion 5:42 demonstrates how the lack of leadership causes the business to loose commitment.

"this has to do with people who don't want to let go, that's one thing, people don't want to let go. It's their territory and there is no uniform leadership management, because there are still two sides."

Case I - QU5:42

SPOKESPERSON ACQUIRED FIRM

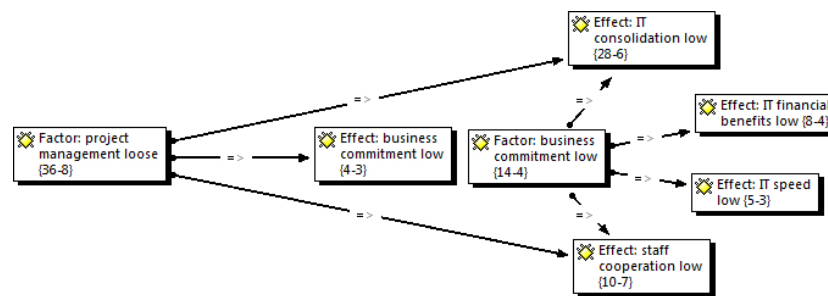


Figure 6.7: Case I: Network diagram of the IT related counterpart of managerial commitment, the factor/effect business commitment

Business Commitment

Low commitment from the business is often mentioned as a key factor for not achieving the IT integration objectives from the merger. This commitment can even be extended further to include the organizational integration of the IT departments as well. Due to national differences and the complexity of joint projects, it also happened that the IT departments prefer to work on single firm projects as opposed to collaborating. The projects that do cross the firm's borders however, are suffering from the low business commitment. The network diagram of business commitment is shown in Figure 6.7. The case data shows that there is an impact here from business to IT. The most important causalities are discussed next.

Low business commitment leads to low implementation speed

Despite the objectives for IT to consolidate the application landscape the low business commitment resulted in delays for the IT projects. Common IT projects are characterized as complex and political and IT staff therefore prefers not to be involved in them. Quotation 13:8 illustrates how the business has an impact on the IT speed.

"That means for us [i.e. the IT department] it will be very difficult because without business drivers, business commitment, top management commitment, we cannot do it."

Case I - QUI3:8
SPOKESPERSON ACQUIRED FIRM

Low business commitment leads to low IT consolidation

The case data has given many insights into the difficulties that arise in a preservation merger, where the aim is to consolidate the IT systems. Interviewees with an IT role in the integration have sketched why it is almost impossible to role out a common application to two different users. System development is subject to two sets of different business processes and neither of the two sides is willing to adapt without being forced to do so. There have been quoted examples of large IT projects that have failed to reach the project goals because of this issue. It is safe to say that the data points out that business commitment is the most difficult problem in the airline case. The result at the time of the interview was that just about 10% of all applications is common, which is generally perceived as an very low consolidation effect. See quotation 10:4.

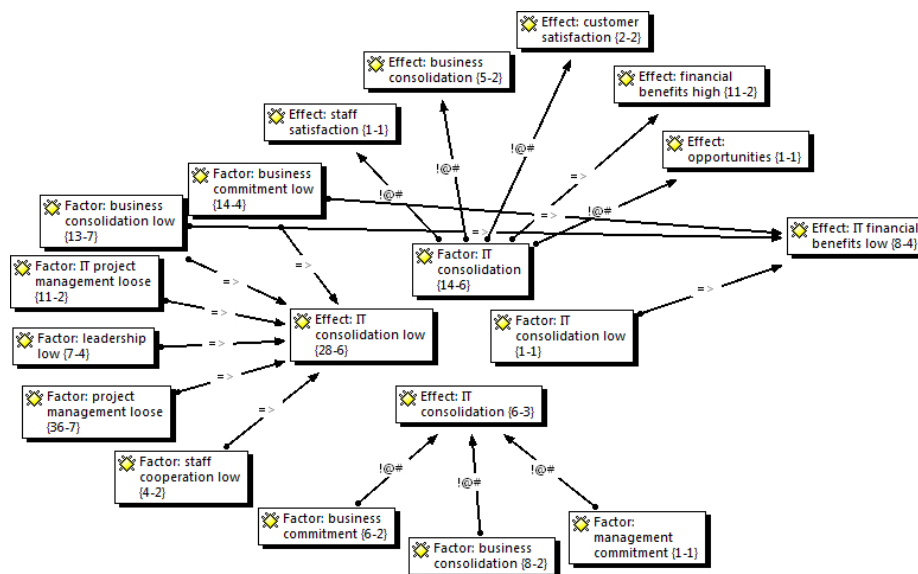


Figure 6.8: Case I: Network diagram of the factor/effect IT consolidation

"[...] we concluded after that the clustering and coloring process was difficult to put in place because the business didn't had decided to converge and it was difficult to cluster one for [acquirer] and [acquired], it was very difficult to link"

Case I - QU10:4

SPOKESPERSON ACQUIRING FIRM

IT Consolidation

In the airline case, the consolidation of IT systems is associated with high resistance and low business commitment and results have been disappointing. The factors that cause a low consolidation can be viewed in the network diagram of Figure 6.8. It is observed that many concepts are being related to the IT consolidation and that results from the IT consolidation have an impact on satisfaction, opportunities, and possibilities regarding business consolidation. Another relationship that is noteworthy is the low IT financial benefits that are achieved.

IT consolidation low leads to low IT financial benefits

The expectations for synergies in IT were high which was motivated by the idea to have 70% of all business applications common. In financial terms, there were expected savings to come from having less business applications as well as the merging of the IT departments. Due to the disappointing results in the consolidation, the costs for IT of the new organization were much higher than expected.

"But now we have to be more efficient in developing common systems and to make real IT savings and we cannot keep two IT departments because it is less and less considered as realistic."

Case I - QU7:17

SPOKESPERSON ACQUIRING FIRM

6.2.2 Case II: Shipping business

The causal network of the shipping case is shown in Figure 6.9. Again, the business related factor/effects have been mostly moved to the lefthand side, while IT related factor/effects are on the right. We note that in this case IT related factor/effects have a significantly higher impact in the PMI than do business factor/effects. The reasons as to explain this observation will become apparent throughout this subsection, in which the interaction between factor/effects for this case will be discussed step-by-step.

Integration level

It was clear that the acquirer in the shipping case was looking for a firm to absorb into its own organization. The IT systems were even set up in a scalable way, so that an acquired firm could quickly be absorbed. Although this can be considered part of the business strategy, some interviewees argue that the nature of the industry (networked) dictates the integration level in this case. Quotation 19:23 illustrated this observation.

"However, in a network company where it is really a global network that you are talking about, that integration has to be full and deep. Because it is the product that you are selling. So it was fully integrated, the same brand, business processes etc."

Case II - QU19:23
SPOKESPERSON ACQUIRED FIRM

The network diagram for integration level is shown in Figure 6.10. It is mentioned by interviewees that the nature of the industry also dictated that the integration had to be performed at a high pace. This was also something that they obtained as an advice from an independent consultancy company that looked into the integration possibilities. Furthermore, there exists a relationship from the integration level to the IT integration level.

Integration level absorption leads to IT integration level take-over

As quotation 22:4 illustrates, the integration level also had implications for the IT integration level. The main argument is that in an integrated organization it is beneficial to only maintain a single system. Another argument that is mentioned is that prior M&A experience of the acquirer had taught the organization that it is extremely hard to integrate two information systems - hence they choose a single system approach. The network diagram for IT integration level factor/effect is shown in Figure 6.11.

"Alternative would have been to keep as two separate companies but it was very early, I think even before the final decision, that it was one integrated company. That then also guided the IT decision because it was very early determined that we would also need one IT platform."

Case II - QU22:4
SPOKESPERSON ACQUIRING FIRM

Mismatch integration level for business and IT

Although the idea of a single system logically corresponds to an absorption

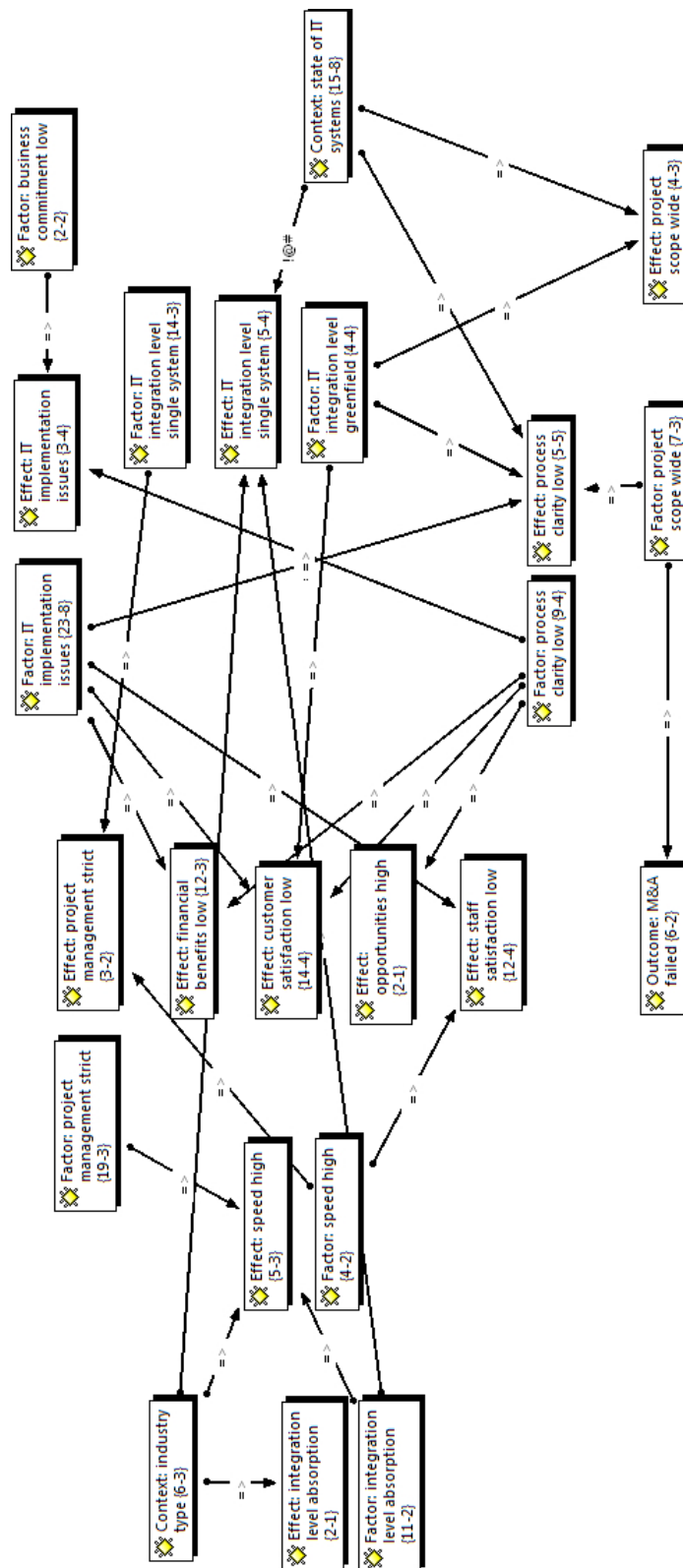


Figure 6.9: Case II: Network diagram for the case in the shipping business. On the lefthand side are business related factor/effects and on the righthand side are mostly IT related factor/effects. This network diagram shows a selection of concepts and interaction effects that are the most relevant to explaining reciprocation between business and IT.

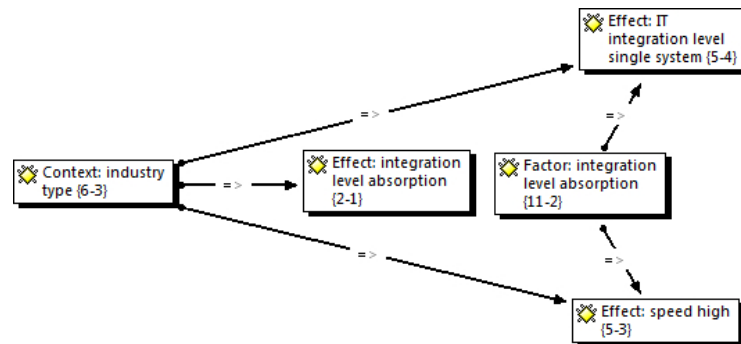


Figure 6.10: Case II: Network diagram of the business related factor/effect integration level

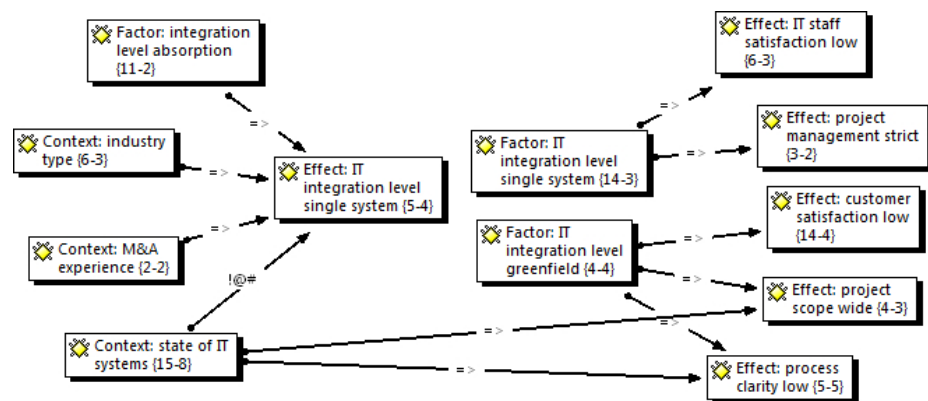


Figure 6.11: Case II: Network diagram of the factor/effect IT integration level

strategy, an additional factor changes this perception. Recall from the descriptive summaries in subsection 5.2.2 that the integration plan included the implementation of a underdeveloped IT system which hadn't even been implemented in the acquirer organization itself. The state of the IT system's development is such that instead of an IT integration level 'take-over', it actually corresponds to the level of 'renewal' or 'greenfield' meaning that they plan to implement a completely new system for the entire new organization. It is observed that this is a mismatch between the business and IT integration levels, which is discussed in more detail in the cross-case analysis.

IT integration level greenfield leads to wide project scope

Both management and staff experience the post-merger integration as a greenfield implementation of IT systems. From the case data, it is clear that interviewees from both the acquirer and the acquired feel as if they go through an organizational integration as well as an complete IT implementation. Many perceive this as a negative process, because there are too many thing going on at the same time. Recall from Section 6.1.5 that the 'project scope' factor/effect was introduced for this purpose. It is observed that the IT integration level 'greenfield' therefore leads to a wide project scope, as is shown in Figure 6.11 and illustrated by quotation 19:17.

"The second thing is: continuing to build an application and deploy it while you are at integrating a company, there are too many moving parts."

Case II - Q19:17
SPOKESPERSON ACQUIRED FIRM

Project Scope

A wide project scope has been caused by the greenfield IT integration level and by the state of IT system development, as is observed from the interviews. Another factor leading to a wide project scope (see Figure 6.12) has been the optimistic expectations regarding the impact of the greenfield implementation, as well as the expectations about the progress on development of the IT systems. Interviewees have even perceived the wide project scope as a reason for the financial disaster, and the main reason for the M&A to fail.

Wide project scope leads to low process clarity

Doing an IT implementation on top of an post-merger integration is perceived by many interviewees as too many moving parts. One of the main arguments against such an approach is that the understanding of the business processes was lost. This is referred to as a low process clarity. The result of this situation is sketched in quotation 28:42. While the acquired firm needed to be trained into the new business processes, the acquired staff was actually not in good shape to transfer the skills because they too were subject to a dynamic environment.

"It was a whole other system than what we rolled out. And then you bring 14000 [acquired] people and 25000 [acquiring] people live and none of them knew what they were doing on this whole new platform."

Case II - Q128:42
SPOKESPERSON ACQUIRING FIRM

Process Clarity

The ambiguity around business processes is mentioned by many interviewees as the main reason why the problems with the IT implementation occurred. On top of the wide project scope, interviewees also refer to the e-learning that was available to learn to use the new IT system. There was however a lot of cheating going on among staff, which resulted in an even lower process clarity during the post-merger integration. The network diagram for process clarity is shown in Figure 6.13. Interesting to notice is the feedback loop between process clarity and IT implementation issues. These causalities are discussed next.

Low process clarity leads to IT implementation issues

The post-merger integration in the shipping case suffered from IT related implementation issues. One of the causes that has been identified by the interviewees has been the low understanding of business processes. This observation illustrates how tightly the IT systems are linked to business processes. If there is a low understanding of business processes, issues will arise (see quotation 23:42).

"[...] having the processes clearly explained and not just the system keyboard strokes"

Case II - QU23:42
SPOKESPERSON ACQUIRED FIRM

IT Implementation Issues

A recurring theme in the interviews that nobody left unnoticed, were the implementation issues that occurred as a result of the system implementation. The impact of these issues on the operations was so severe that 'implementation issues' were quoted by the CEO as the main reason why the PMI failed. The relationships with other factor/effects is shown in the network diagram of Figure 6.14. It has been negatively related to the satisfaction of both customers and staff as well as the bad financial results of the merger. Some interviewees named the IT implementation issues as the reason why the IT integration failed.

IT implementation issues lead to low customer satisfaction

The most disturbing result of the implementation issues is the impact that it had on the customer. Problems that occurred as a result of these issues included multiple invoices sent to the customer, unable to give information about shipments to customers (see quotation 25:16), and customer receiving a whole list of e-mails when a change was made to their invoice. The bottomline is that the IT implementation issues were so severe that staff working for customer care sometimes didn't even dare to pick up the phone because they knew there would be dissatisfied customers calling which they would be unable to help. The implementation issues were the reason why additional staff had to be hired to key in data from one system to another. Many interviewees say that the issues caused customers to be unhappy, which in turn lead to unsatisfied staff.

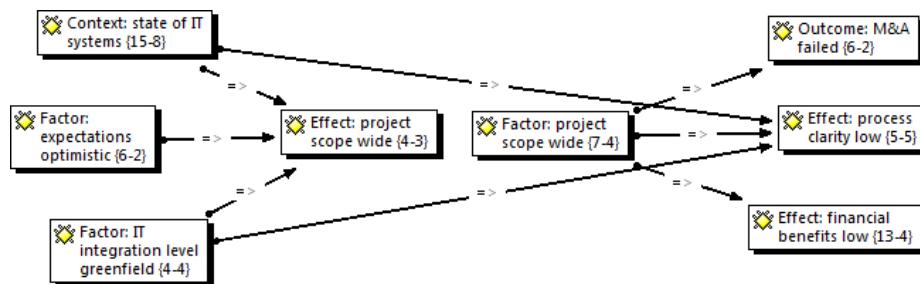


Figure 6.12: Case II: Network diagram of the business related factor/effect project scope

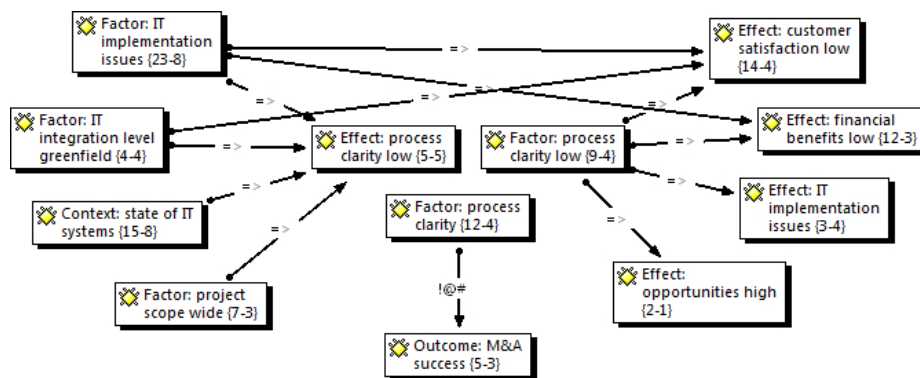


Figure 6.13: Case II: Network diagram of the factor/effect process clarity

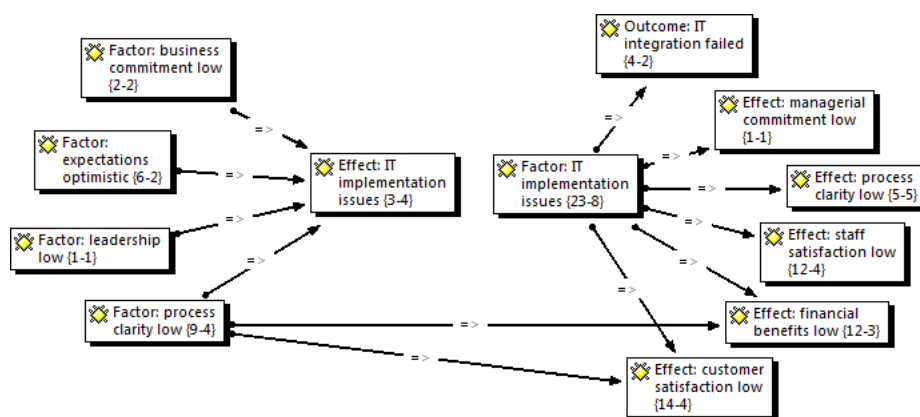


Figure 6.14: Case II: Network diagram of the factor/effect IT implementation issues

"That was a big issue when we had to integrate the two companies and caused a lot of issues for our customers and the service delivery quality dropped right after the integration and we had troubles getting the bills of lading to the customers, also problems to get correct invoices to them, we still have that."

Case II - QU25:16
SPOKESPERSON ACQUIRING FIRM

Chapter 7

Cross-Case Analysis

The within-case study has attempted to explain the events that took place in the cases. Both cases clearly have their own characteristics in terms of PMI factor/effects, and also in terms of the interaction between them. In this chapter the goal is to look for explanations of the integration process that can be identified in a similar way for both cases. This allows to increase the generalizability of the research findings and finally allows for theory building.

7.1 Cross-Case Reports

The first part of the cross-case analysis compares the content of the two cases and focusses on the most significant differences and similarities. The goal of this section is to find out to what extent events can be understood in a generic way. The approach to achieve this goal is twofold. Firstly, the content of the two sets of interviews will be considered comparatively to see how the differences between the cases can be explained. This corresponds to a case-oriented strategy for cross-case analysis from Miles and Huberman (1994). Secondly in a variable-oriented strategy, the events are generalized on the basis of consolidated codings in order to see what have been the most relevant factor/effects to explain the events in the PMI and particularly, to explain the reciprocation between business and IT.

7.1.1 Success vs. Failure

An insightful observation about business and IT reciprocation in a post-merger context involves the perception of success or failure. One of the motivations to start this current research project has been a statement by a business executive that the post-merger IT integration was the reason why the entire merger failed. In order to find out whether such a statement is really true and hence to see if the IT integration does indeed has such an influence on the outcome of the merger, success perceptions can be considered. In Table 7.1 the occurrences of quotations about success or failure have been summarized. Note that these figures do not represent the number of interviewees that perceive a success, but rather the number of times that a statement about success or failure has been made in the interviews.

Table 7.1: Perception of success or failure of the M&A, the business integration, and the IT integration displayed in [success - failure] format

		M&A	BUSINESS INTEGRATION	IT INTEGRATION
Case I	Success	13	1	2
	Failure	0	1	12
Case II	Success	5	3	16
	Failure	6	2	4

The data clearly shows that the M&A in the airline case is widely considered a success by the interviewees. This is also illustrated by quotation 11:17. Interestingly, the majority of statements about the IT integration however point out that the post-merger IT integration has not at all been successful. Many interviewees refer to IT integration projects that overran their budgets and timelines, and the lack of commitment from the business to adapt to common processes. Also the results after four years of integration are extremely disappointing.

"First of all it is not only us that consider the merger a success. It is widely accepted in the aviation industry that this merger is a smashing success. It has been considered as a template for further consolidation in the industry."

Case I - Quotation 11:17
SPOKESPERSON ACQUIRED FIRM

The most obvious reason why the M&A is nevertheless perceived a success is that synergies could be achieved without integration. Merely by signing the deal and deciding to collaborate lead to the synchronizing of flight schedules in order to increase efficiency, it lead to a significant increase in purchasing power, and it lead to the execution of a number of successful joint projects. Each of these advantages has been noticed by the market and therefore they see the big advantages the merger has had.

The success perceptions on the M&A deal in the shipping case were not so unisome. Some interviewees have reasons to say that the merger has failed, while others acknowledge the complications that have occurred but nevertheless consider the merger a success. It should be noted that the situation shortly after the merger has been dramatic in terms of financial results. This was the reason why some blame the IT integration. Furthermore, the IT integration is perceived in many quotations as a success. An important reason for this observation is that the system scalability worked as was hoped for and also the technical consolidation of IT infrastructures went exceptionally well. Quotation 24:34 illustrates this.

"So if you say was the [IT] integration successful I probably say we covered all the topics we should have covered, we did it within timeframe, we did it within budget, but overall I would give it a 6 out of 10 because you couldn't divorce it from the system implementation."

Case II - Quotation 24:34
SPOKESPERSON ACQUIRED FIRM

7.1.2 Business vs. IT

This research was initiated with the idea that factors playing a role in both M&A integration and in enterprise systems integration are able to explain the complex relationship between business and IT in a post-merger integration phase. This assumption is now reconsidered to question whether the business integration can really be considered distinct from an IT integration. The reason for this doubt is that, when looking at the explorative displays from Section 5.3, it is noted that many factor/effects have the same qualifications for both the business related factor and its IT counterpart. This holds true especially for five of the seven PMI factors that were identified from the literature; project management, staff, expectations, communication, and speed. Here it is argued that these factor/effects have such an intense reciprocation between business and IT, that it does not make sense to consider them in isolation.

Recall that for managerial commitment, the IT related factor was adapted to cover 'business commitment' - which was shown to be applicable in both of the cases and reflects the willingness to change from the business towards changing information systems. The difference between integration levels of business and IT will be discussed in subsection 7.2.3, since it has proven to be very insightful.

Project management It is observed that the project management style and planning of integration activities differs strongly between the two cases, but in both cases the business and IT qualifications correspond to each other. This means that a strict business integration with exact planning and deliverables, corresponds to a strict planning and deliverables in IT integration. Put differently, the case studies point out that both business and IT are subject to the same style of project management. This has to do with setting goals for the integration and defining timelines, or deadlines. In both cases, this is done simultaneously for both the business as well as IT.

Speed The case data points out that the speed of integration and the speed of system implementation are strongly interlinked. On the one hand the airline case showed that a low business consolidation hampers the implementation speed of IT systems, while on the other hand it is observed in the shipping case that system implementation issues hamper the business integration speed. This indicates that the pace of the one integration directly influences the pace of the other, and that it is therefore unjustified to consider them in isolation.

Expectations In both the case studies it has been found that expectations are high for both the business integration as well as the IT integration. It can be argued that mergers and post-merger integration are perhaps always

accompanied by expectations for high synergies and possibilities; deals without promising prospects never get a signature. Nevertheless, in the cases business and IT are both subject to the same high expectations.

Communication The communication around the merger and the post-merger integration has shown to be consistent between business and IT. Communication which the interviewees considered relevant to the merger is usually performed organization-wide. No significant differences have therefore been observed between the way communication was performed in relation to business integration and IT integration.

Staff Each of the interviewees was classified as having a 'business' or 'IT' role. The advantage of this distinction was that quotations could be placed into the right context, in order to shape a more business-oriented view and an IT-oriented view on the integration processes. Although the distinction between IT and business is there, the data shows that on the staff dimensions of 'satisfaction' and 'cooperation', there have been only minor differences throughout the PMI. Most of the time the quotations talked about staff in general, and many of the decisions made during the PMI impact both business as well as IT staff.

7.1.3 Integration Level Contingency

It is observed that in both cases, the business integration level seems to be determined partially by the context of the merger. In the airline case it is the regulatory context that prevents the two firm from merging to a single brand (i.e. absorption), hence the highest achievable integration level would be symbiosis. In the shipping case it is the networked nature of the container business that dictates a full (absorption) integration.

One approach to explaining the major differences between the two cases is to consider their integration level. In the airline case the intended integration level is preservation (with some signs of symbiosis), while in the shipping case it is absorption. It is observed that the qualifications of many of the characteristic factor/effects can be understood in terms of this integration level difference. Four factor/effects are considered that show a contingency upon integration level.

Project management

First of all, the decision in the shipping case to go for an absorption integration level, resulted in a clear goal in terms of what the desired post-integration situation would look like. This included both business and IT consolidation goals. It was clear that there would be a complete integration of all processes, systems, etc. The new organization would not maintain any redundant operations or information systems. This gives the integration an advantage, because as a result of this clear goal formulation, it has been possible to apply a very strict way of project management to guarantee progress. Since the acquirer knew what they wanted to achieve, they could work with strict deadlines and milestones, and really push both the business and IT to deliver on time. In the airline case, there has been no such situation. Management decided on a

preservation integration level but still looked for a symbiotic type of collaboration, so they announced a fair and balanced way to look for synergies. As is observed from both the descriptive summaries and the explanatory displays, this resulted in a situation in which nobody in the entire organization knew what the end result of the integration process would be. Nobody (including management) was therefore able to apply strict project management methodologies using for instance project deadlines, which resulted in disastrous progress of the integration.

Speed

Closely related to the project management, we observe that the speed of integration is also a function of integration level. The absorption approach in the shipping case, implied the consolidation of the two brands. It is observed that this has implications on the speed, because the moment the merger is signed the acquired firm formally ceases to exist. It therefore quickly needs to be able to operate under the new brand name. Also, having a clear plan (as in the shipping case) means that a high integration speed can be achieved, because it is known in advance what will need to happen. Prior M&A experience also contributed to this knowledge. Considering the airline case, there has been no such time pressure on finishing the integration. A high speed is generally associated with force of action, and in the airline case it was included in the integration guidelines not to 'rock the boat'. Maintaining a slow pace has also been associated with high satisfaction from the staff, because they have got the time to get to know each other, get used to each other, which are all activities that can stimulate a fruitful collaboration. In the airline case, a slow integration pace is considered a prerequisite to keep a positive atmosphere in the friendly merger.

Managerial commitment

Although the data shows that managerial commitment can be interpreted in different ways and on different levels, we note that the shipping case is characterized by high - and the airline case by low managerial commitment. The nature of this difference can again be related to the integration level because 'having a clear vision' on the integration is what most of the interviewees experience as high commitment. Again, absorption in the shipping case is associated with a clear plan, clear goals and high commitment from management, preservation/symbiosis in the airline case is associated with a lack of clear vision, a lack of decisiveness from the top and a low managerial commitment.

Staff Cooperation/Satisfaction

It is observed that in the shipping case, the absorption approach resulted in high cooperation from the acquired staff towards the integration. Although this seems exceptional, from the interviews it became clear that most of the staff surrender to the new organization and are willing to cooperate if they are required to do so. Factors that also contributed to this positive collaborative atmosphere was the objective to retain staff and the open, honest and 'friendly'

approach of the acquirer. The high pace of integration and strict project management led to the perception among staff that there was no other option than to integrate. Naturally, some resistance did occur, but because it was very clear there was no alternative to full integration, resistance was not rewarded with effect and hence it never had an impact on the integration. Looking at the airline case, the situation around staff has been totally different. Communicating a preservation strategy, management has created the perception that staff would not be negatively impacted by the merger. This has created an atmosphere of staff resistance towards adapting to the new situation. When management seeks opportunities to collaborate and to integrate (e.g. by planning to consolidate IT), business staff is quick to protect their own ground in terms of IT and processes. Staff resistance is also associated with low satisfaction, among others because integration projects fail and there is no plan for the near future.

7.2 Explanatory Displays

In this section results of the cross-case analysis are visually represented. The interaction between business and IT that is identified within the cases is elaborated and the observations regarding the integration levels is illustrated.

7.2.1 Factor/Effect Impact

In Section 2.5 the conceptual relationships of interaction effects were introduced. Recall that interaction describes relationships between three or more variables with a focus on the interaction between business related factors and IT related effects, or vice versa, between IT related factors and business related effects. In the following analysis, the case codings and relationships have been consolidated allowing for an understanding of how impact has occurred in the PMI. In order to arrive at the consolidated codes and relationships the case interviews have been merged into a single hermeneutic unit in Atlas.ti. The result is a complex network of causalities, some of which are conflicting due to loss of the case context. To extract information on impact between factors and effects the level of abstraction must be increased, since causal relationships (including a qualification, see subsection 5.1.1 on Qualifications) are no longer of interest, merely the fact that one factor impacts an effect is relevant. Therefore, two consecutive steps have been taken to arrive at this higher level of abstraction. In the first step, all factor codes belonging to a single factor have been reduced to one code. For example, the codes *Factor: speed high*, *Factor: speed low*, and *Factor: speed*, have all been merged into *Factor: speed*. In the second step, all of the causal relationships that were present between factors and effects have been changed to the impact relationship. The result of these two steps is that for example the relationship '*Factor: speed high* leads to *Effect: staff satisfaction low*' has been reduced to '*Factor: speed* has an impact on *Effect: staff*'. The results of this analysis are discussed next. Note that factor/effects '*Communication*' and '*Process Clarity*' are present in both diagrams since they have been found to have no separate business and IT interpretation.

Impact from Business to IT

Figure 7.1 shows the impact from business related factors to IT related effects from the consolidated set of data. In total, 14 impact relationships have been identified by the interviewees that relate business to IT. A number of observations from Figure 7.1 help to understand this type of business-IT reciprocation.

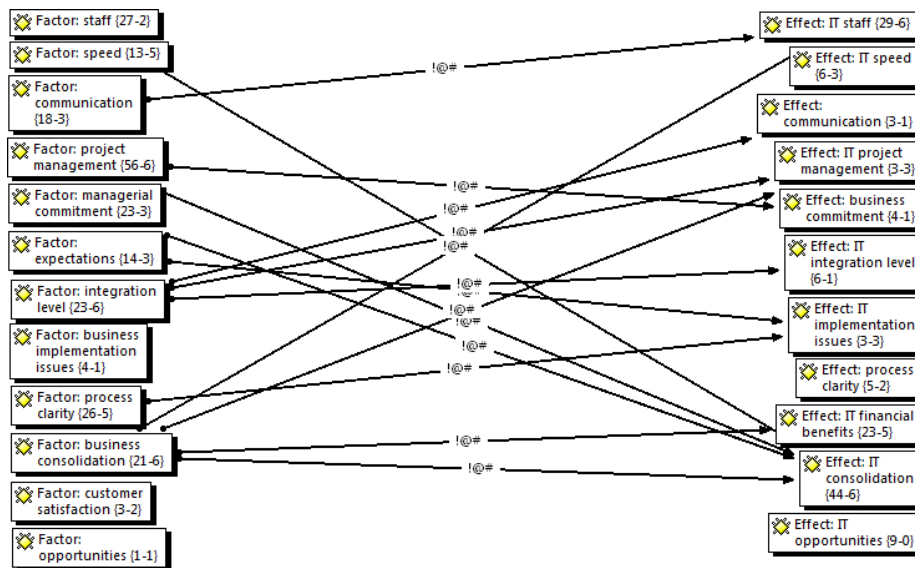


Figure 7.1: Network diagram showing interaction from business related factors on the left to IT related effects on the right. These relationships are extracted from the consolidated codings for both cases.

Business consolidation This is the business factor that has the largest impact in terms of the number of IT related factor/effects it impacts. The data shows that business consolidation has an impact on IT consolidation, and IT financial benefits. These are both effects by which the quality or success of the IT integration might be measured, and hence it is impacted by the business.

Integration level When management decides on a integration level for the business, the case studies have shown that this also has an impact on IT related factor/effects for example on the IT integration level, and on the project management for IT.

IT consolidation An important outcome of the PMI is the consolidation of information systems. The case data has shown that this is also impacted by business related factors such as staff, project management and managerial commitment.

Impact from IT to Business

The network diagram used to show impact from IT related factors to business related effects is shown in Figure 7.2. Notably, there is a higher number of relationships from IT to business factor/effects than there is from business to IT: 23 impact relationships have been identified from the interviews relating IT to business.

In making a general remark about the impact from IT to business, it is noted

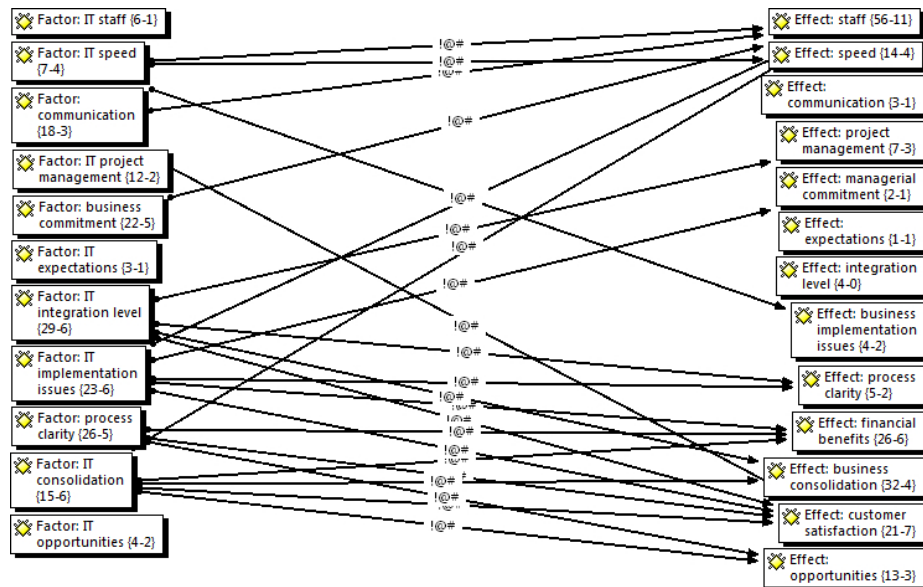


Figure 7.2: Network diagram showing impact from IT related factors on the left to business related effects on the right. These relationships are extracted from the consolidated codings for both cases.

that there are many relationships pointing towards the effects that have been identified as such in the initial factor/effect framework: financial benefits, business consolidation, customer satisfaction and opportunities. From this observation alone, it could be concluded that IT plays a key role in achieving the business goals of the integration. Other observations are highlighted below.

IT consolidation The extent to which the IT is consolidated in the PMI phase is seen to have a significant impact on the business integration. The case studies show that it impacts all of the four initial effects, including the business consolidation, and it is shown to also impact business staff.

Business staff Perhaps not surprising, but from Figure 7.2 it is clear that business staff is impacted by different IT related factors. For example they are impacted by the speed of implementation. Also issues that arise in IT implementation impact the business staff.

IT implementation issues When problems arise from the implementation of IT systems, the business is impacted in several ways. It has a direct impact on effects of the business integration, such as customer satisfaction

and financial outcomes. Furthermore, the case data showed that also management react to IT complications, affecting the managerial commitment to change the business.

7.2.2 Business/IT Interaction

Now that the impact between business and IT has been considered in a cross-case analysis, it is insightful to look at interaction effects between business and IT. The interaction effects have been described in Section 2.5 as relationships consisting of multiple variables. In order to arrive at a description of business/IT interaction, the network diagrams of Figure 7.1 and Figure 7.2 have been combined with each other. Note that no chronological order in causal relations has been identified from the case data, but rather continuous impact has been observed. There is therefore no 'right' order in which business and IT interact with each other. In order to take the final step in the analysis, the conceptual difference between a PMI factor and an PMI effect is finally discarded. To display the business/IT interaction the factors and effects have been merged into a single entity by showing them side by side, for example: 'Factor: project management' and 'Effect: project management' have now been combined. The merged factor/effect can therefore both have an impact on other entities (through the PMI factor code), as well as be impact by other entities (through the PMI effect code). This final step serves to demonstrate the presence of interaction effects corresponding to an 'A impacts B, and B impacts C' type relation (recall from Figure 2.6). The result of the analysis helps to understand the complex business/IT interaction that is obtained by combining Figure 7.1 and Figure 7.2. The observed interaction effects have been shown in Figure 7.3. Note how the relationships within business factors/effects are omitted in this figure, likewise for IT factor/effects. Apart from the complex interactions that are observed Figure 7.3 summarizes the number of times that PMI factor/effects are mentioned in a two-variable relationship by the interviewees (through the adding grounding numbers, x in $\{x,y\}$). It is able to explain that 'Staff' is one of the most recurring themes in understanding the post-merger integration. Furthermore, consolidation of both business and IT are mentioned relatively often in these relations.

Feedback Loops

The interaction between business and IT can partially be described in terms of *feedback loops* that shows how factor A impacts effect B, which in turn impacts factor A. In the terminology used here, it would yield a loop from factor A to effect B, and back from factor B to effect A. Indeed, the data shows that there exist a number of feedback loops: for example one loop that relates business consolidation to IT consolidation, which is illustrated in Figure 7.4. Observe from Figure 7.3 that other feedback loops occur between 'staff' and 'IT consolidation', and between 'Process clarity' and 'IT implementation issues'.

Feedback loops between business and IT are excellent examples of how closely interlinked the business integration and IT integration actually are. There is an impact of either integration on the other, which supports the need for a common view on how to achieve integration goals. It shows how neither of them can be considered in isolation during the PMI phase.

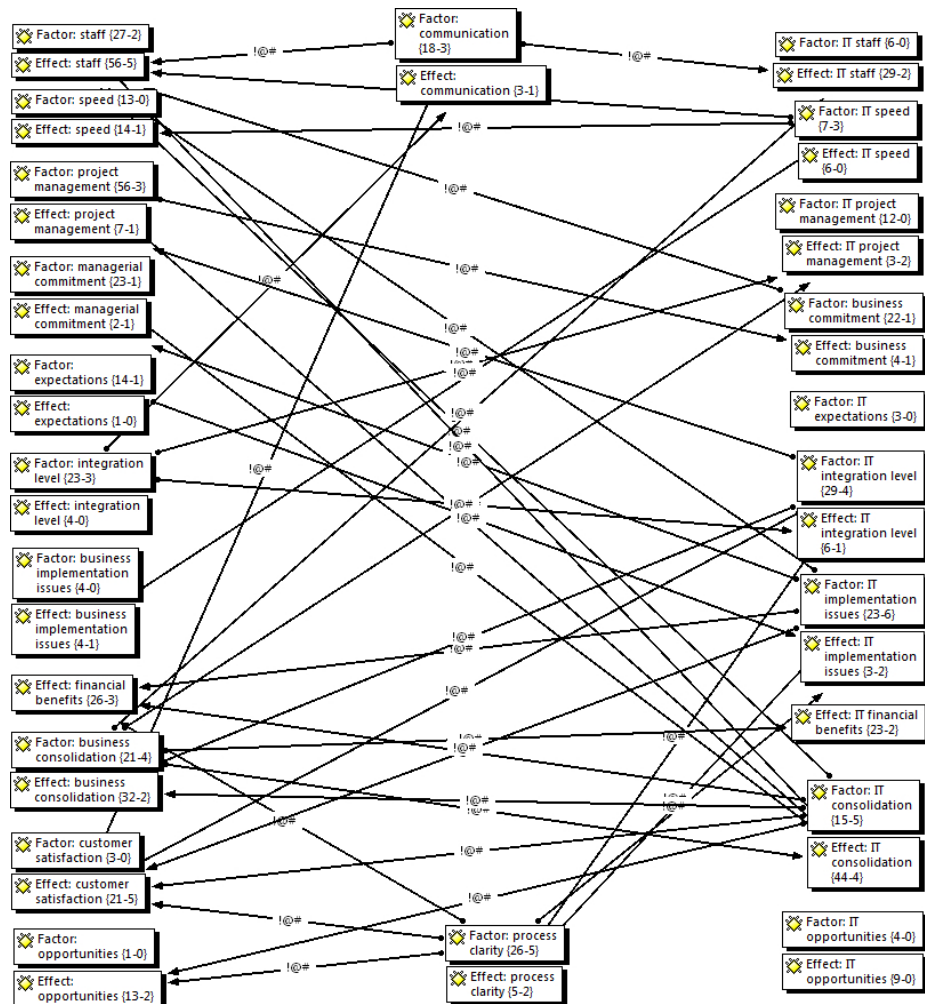


Figure 7.3: Network diagram showing interaction effects between business related factor/effects on the left and IT related factor/effects on the right. The relationships are extracted from the consolidated codings for both cases.

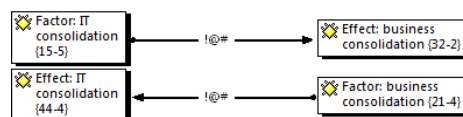


Figure 7.4: Example of a feedback loop: relations between business integration and IT integration.

7.2.3 Business & IT Integration Levels

Finally, it is shown in Section 6.2 how many causalities in the post-merger integration can be explained by considering the integration level. In Chapter 2 the five different integration levels have been reviewed. Moving from low to high integration levels they are: holding, preservation, symbiosis, absorption, and transformation. The cases in this research correspond to a preservation in the airline case, and to absorption in the shipping case. Similarly, IT integration levels have been considered in Chapter 2 that describe the level to which the IT systems are consolidated, which are: disconnected, synchronization, standardization, take-over, and renewal. In the airline case, a standardization level was chosen (indicated by the clustering & coloring process) while in the shipping case they expected a take-over level (implementing the acquirer system). However, due to the state of the system development in the shipping case, the IT integration level had more characteristics of renewal in which completely new ERP systems are implemented. A similar pattern has been observed in both cases that involves the business and IT related integration levels. A recurring theme has been mentioned by many interviewees, is that IT is used in the PMI phase as an 'instrument for change'. This means that the organization, or management, assumes that a successful way to integrate the business is to integrate IT to the desired level. The assumption is that implementing IT will cause the rest to follow. In this way, IT is expected to change the business on its own. It is observed in the cases that such an approach creates many integration problems. In the airline case, management communicated a preservation level to the business. This implies that the business does not need to change its processes as a result of the merger, hence no need to rethink their activities. The business expects that there is room for some learning, some best practices, and some collaboration on new projects - but no integration. This was also sketched by the guideline from management about 'integration' being a forbidden word. Despite this communication towards the organization, the IT departments were put together in an very early stage of the post-merger integration in order to find out how to consolidate the business applications of the two firms, the target being 70% common applications in the first five years. There is a clear discrepancy here between the level of business integration level and IT integration level, because it is practically impossible to achieve 70% common applications, without making significant changes to the business processes. It is noted that this mismatch of integration levels is not a coincidence: management 'hoped' that synergies could be achieved in IT by raising the IT integration level, but more importantly they had hoped that the consolidation of IT systems would shape their new organization into a symbiotic collaboration. Hence, IT is used to reach a higher level of business integration, i.e. IT is used as an instrument to change the business. The difficulties that arose due to this approach are illustrated by quotation 5:6.

"The instruction was: [acquirer] and [acquired] IT, you sit together and create a sort of zipper and bring together two businesses by creating one IT-system and then we will get all the synergies. Quit rapidly we found out that the idea was nice, the importance of IT in this aspect was appreciated, but the world didn't work like that, it will never work like that, because the approach, the way we went into this, the method we invented to make this work, did not work quite as well as we had hoped."

Case I - Quotation 5:6
SPOKESPERSON ACQUIRED FIRM

In the shipping case, there has been a similar process going on although it is somewhat less obvious than in the airline case. The reason for this difference is on the one hand the different integration levels, and on the other hand the fact that the actual IT integration level was never deliberately decided in the shipping case. Anyhow, the same pattern can be identified because the communicated integration level was absorption. This implies that the acquired business will be completely absorbed into the acquiring firm. For the acquired business, this means that they will be told what the new business processes will look like. For the acquirer business, this means that they should 'teach' their business processes to the new firm. Recall from Section 5.2 that the post-merger integration in the shipping case went in parallel with the implementation of a new ERP suite. This led to the situation in which the acquiring firm did not know its own business processes well enough to teach them to the acquired business. In fact what needed to happen, was that the entire organization reconsidered its activities and support this with the new information system. This corresponds to an integration level transformation, in which new business processes are created and implemented into the organization. Hence without having intended to, management has not only absorbed the acquired firm but also transformed the entire organization through the implementation of IT systems. The complex situation that occurred as a result of this change are illustrated by quotation 22:33.

"I think the main lesson I have learned is that we had underestimated the impact this big integration would have. And particularly we had underestimated the impact of doing system implementations and change management at the same time as doing the integration. So what we have underestimated was the fact that we had a lot of new colleagues coming in, but we didn't know our processes well enough but also we didn't know our products very well and didn't know our systems."

Case II - Quotation 22:33
SPOKESPERSON ACQUIRING FIRM

The similarities that are observed are displayed in Figure 7.5 and can be summarized as follows. In a post-merger integration context, the ambitions for the IT integration level are higher than the communicated business integration level. The expectations regarding this choice are that IT will be able to integrate the business on its own, so in the end, to achieve a higher level of business integration. The IT integration level is thus perceived to be leading in achieving the intended level of integration. The assumption here is that IT is powerful enough to change the business on its own. However, both the case studies show that without sufficient commitment from the business and without sufficient clarity on what the intended business processes are, IT is not able to realize this change. Therefore, an approach that contains a mismatch between business and IT integration levels, is bound to cope with complex

implementation issues. The business needs to be prepared and motivated to cooperate and achieve the same level as IT.

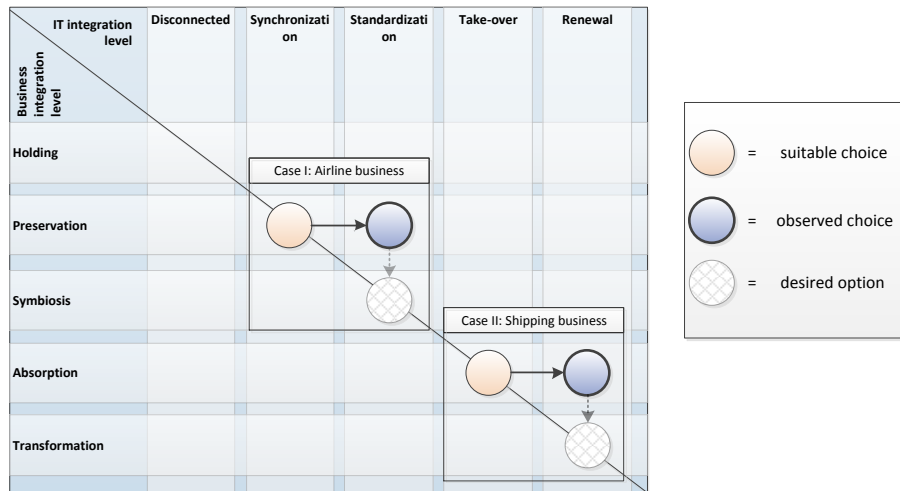


Figure 7.5: Similar patterns are observed in the choice for integration levels for business and IT.

Chapter 8

Conclusions, Validation & Discussion

Two cases have been studied in this explorative research into the role of IT within post-merger integration (PMI). The main objective has been to increase the understanding of reciprocation between business and IT in a post-merger context. Qualitative data from 29 interviews have been coded in two consecutive rounds of analysis, applying a factor/effect model and identifying relationships between factors and effects across business and IT. An adapted research approach from Miles and Huberman (1994) has been used to derive a thorough qualitative research method. This chapter summarizes the most important findings of the research. The external validity of the findings is reviewed by considering scientific literature and interpreting similar research outcomes. Finally, the findings are put in perspective by considering their contribution to the general body of knowledge, discussing the limitations of this research, and providing recommendations for future work.

8.1 Factor/Effect Model

A review of recent scientific literature in the field of mergers & acquisitions (M&A) and enterprise integration (EI) has shown that there is wide support from the scientific community for the presence of the seven process factors and four process effects from the initial factor/effect model by Schonewille and Bouwman (2010). These process factors are staff, speed, communication, project management, managerial support, expectations and integration level. They have been found to play a role during the post-merger integration and are manageable during the integration process. It has been shown that for each of these factors there exists both a business interpretation from an M&A perspective, as well as an IT interpretation from an EI perspective. Similarly, the effects of post-merger integration have been considered in the literature review. The process effects that have been validated are financial benefits, consolidation, satisfaction and opportunities. Also for the process effects, it is shown that there exists both a business as well as an IT interpretation.

In discussing the scientific support for the factors and effects, a general conclusion is that there lacks a coherent framework that unifies the findings of var-

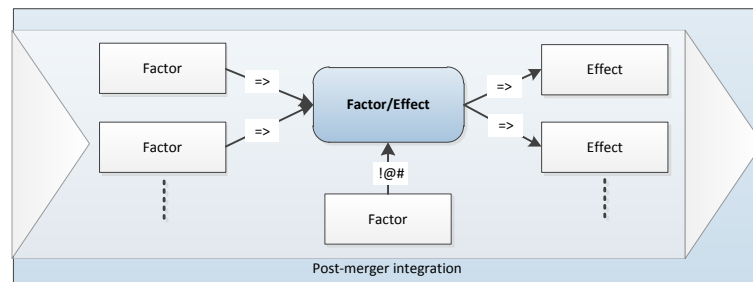


Figure 8.1: A conceptual illustration of the interchangeability of factors and effects.

ious publications. Throughout the literature there exist many different levels of abstraction on which authors pose sets of - what is referred to as, key factors. The definition of these factors has been found to differ from being merely a variable that is statistically correlated to M&A or EI performance, to being a manageable determinant of M&A or EI success. Despite these different levels, the formulation of a clear definition of a PMI factor and PMI effect has resulted in a widely supported set of factors and effects that is used as an initial model for this research.

8.1.1 Factor/Effects

A number of adaptations have been made to the initial factor/ effect model during the course of the research, the most important of which involves the scope of the factors and effects. Whereas the PMI factors were initially defined in an early post-merger stage and the PMI effects as the outcomes of the post-merger integration, it has been shown in this research that factors can lead to effects during the entire process of PMI. Therefore, effects do not only occur at the end of the integration, but also while the integration takes place. Effects of the integration are furthermore observed in turn to play a role during the integration. These observations have resulted in the new concept of 'factor/effects' in which the fixed time interval between them has been omitted. This concept is illustrated in Figure 8.1. In this concept there are factors that lead to a factor/ effect in a causal relationship (left-hand side), the factor/ effect can lead to other effects in a causal relationship (right-hand side), and there can be an impact from a factor on a factor/ effect. The adoption of this new concept has enabled the identification of various new insights into factor/ effect relationships between business and IT.

8.1.2 Additions

In studying two cases in the transport industry two additional factor/ effects have been identified to play a role in the post-merger integration of both cases and have been added to the set of eleven factor/ effects: *Process Clarity* and *Implementation Issues*. Process clarity involves the level of ambiguity around the business processes of the new organization. It has been shown that the presence or absence of process clarity impacts both the business integration as

well as the IT integration. For business and IT it is necessary to understand to what extent business processes will be adapted or adopted in the post-merger situation, which implies that process clarity does not have a distinct business and IT counterpart but rather plays a role at the interface between business integration and IT integration. From a different perspective, implementation issues have also been found to play a key role in explaining the impact between business and IT. It is observed that the occurrence of either business related or information system related implementation issues are recurring factors in the case studies. Implementation issues in the IT integration have been observed to hinder the business in delivering value to the customer and in creating resistance from staff towards the integration. Both process clarity and implementation issues have been observed to play a role during the PMI process, hence they have been added to the determined set resulting in a total of 13 PMI factor/effects.

8.1.3 Findings

By applying the factor/effect model in the case studies there are three main findings that led to additional insights. Firstly, the staff factor/effect is found to have at least two dimensions along which it can be considered: (1) staff cooperation versus staff resistance, and (2) staff satisfaction or staff morale. It is observed that qualifications for these two dimensions can differ from each other during the PMI. Secondly, *business commitment* is identified as the IT counterpart of the factor/effect managerial commitment. Managerial commitment is understood as commitment from top level executives for integration in general, while business commitment is specifically about commitment from the business to adapt to changing IT systems. Thirdly, it is observed that the communication factor/effect has no counterpart in IT. The M&A context results in a single channel of communication about the merger in which the cases have not indicated a distinction between business and IT. These three findings have led to additional understanding of the scope of the factor/effects. The adapted factor/effects model has further been used to identify relationships between business and IT in the post-merger integration, which is discussed in the next section.

8.2 Relations between Business and IT

The case analysis has given insight into the role that the business and IT related factors and effects play during a PMI. In a thorough within-case analysis relationships have been identified that can explain the course of events in both cases as well as demonstrate the reciprocation of business and IT. Furthermore, a cross-case analysis has been performed to test the generalizability of the within-case findings, and consolidated data have been used to indicate relationships between business and IT.

8.2.1 Business/IT Qualifications

In order to identify causal relationships between factors and effects, qualifications have been used to indicate the value of a factor/effect in the interview

quotations. It is observed in the descriptive analysis of the cases that qualifications of a single factor/effect show strong similarities across their business and IT counterparts. In five of the seven initial process factors they show close correspondence: project management, speed, expectations, communication, and staff. It is argued that for these factor/effects business and IT are so highly interlinked, that they cannot be considered and managed in isolation. This argument is supported by the network diagrams of Section 6.2 in which the relationships between business and IT related factor/effects have been depicted.

8.2.2 Integration Level Contingency

It is observed that the integration level plays a qualifying role across business integration and IT integration. The case data indicates that many factor/effects show a contingency on integration level, such that the qualifications of these factor/effects can be related to either the intended level of business integration, or the intended level of IT integration. It is therefore argued that the choice for integration level governs the role of many other factor/effects. This observation of integration level contingency is illustrated in Figure 8.2.

	Integration level	Project management	Integration speed	Managerial commitment	Staff cooperation/satisfaction
	Absorption	STRICT	HIGH	HIGH	HIGH
	Preservation/symbiosis	LOOSE	LOW	LOW	LOW

Figure 8.2: Contingency of four factor/effects on the level of business integration

8.2.3 Interaction between Business & IT

Relationships have been identified between business and IT related factor/effects. On a within-case level each of the two cases have been found to show causal relationships that relate business to IT or IT to business factors/effects. The most important relationships have been included in the causal networks and network diagrams of Section 6.2. It is observed that integration level, project management, managerial commitment, and consolidation are the most dominant factor/effects that can demonstrate the interaction between business and IT. On a cross-case level, it is concluded that the causal relationships that have been found within the cases are context specific. The causalities do not hold true across cases, which can be explained in part by the contingency that certain factor/effects show on integration level. It is shown that there exists impact between business factors and IT effects, which means that factor/effects from the

IT integration have an impact on the business integration and factor/effects from the business integration have an impact on the IT integration. Furthermore, interaction effects have been demonstrated that illustrate the complexities that of business/IT reciprocation. A number of feedback loops have been identified to explain the level to which business and IT are interlinked. From these observations, again it can be concluded that business and IT impact each other through such a significant number of factor/effects that they cannot be considered and managed in isolation during PMI.

8.3 Role of Integration Levels

Besides the contingency of factor/effects on the desired level of post-merger integration, there is a second finding that involves the business and IT integration levels. A similar pattern has been found across the cases that can explain the difficulties that occurred in integrating IT. This pattern is visible when considering the intended level of business integration and IT integration simultaneously, and shows how IT is generally used as an instrument to change the business. In both studied cases a higher IT integration level is persuaded while a lower business integration level is communicated. This mismatch between business and IT integration levels is observed to cause problems in the post-merger integration. IT is expected to be capable of changing the business on its own, in order to integrate the businesses to the desired level. To explain the problems that arise in the cases concerning the integration of information systems, the business processes of the new organization have been considered.

8.3.1 Business Processes

Business integration levels and IT integration levels show a very close relationship. One way to understand this can be derived from the literature review, in which it was found that enterprise wide information systems, or ERP systems, inevitably have an impact on the business processes. In common ERP systems the business processes have basically been defined in advance by the architecture of the information system. The way that the two integration level are interlinked is therefore through the business processes (Figure 8.3). This observation is of key importance in understanding IT integration in a PMI context.

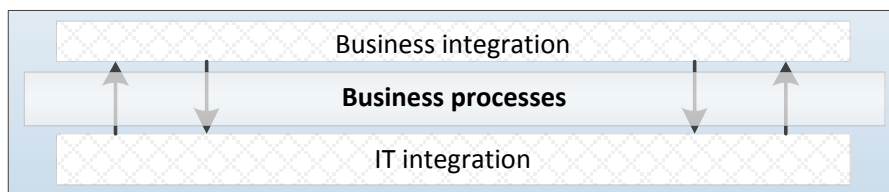


Figure 8.3: Business and IT integration levels are interlinked through the business processes.

On the one hand, a business integration takes place that includes the consolidation of organizations as well as the consolidation of business processes.

The business related integration level explains to what extent this consolidation will happen. On the other hand, an IT integration (apart from a technical integration such as IT infrastructures) consolidates enterprise systems as well as the business processes that they imply. Hence, what the integration level from the business-side and the integration level from the IT-side have in common, is the consolidation of business processes. It is exactly this part of the PMI that leads to the close relationship between integration levels for business & IT.

8.3.2 Process Integration Level

In order to prevent the implementation issues that have occurred in the case studies the business and IT integration level should closely correspond to each other. That is, they should agree on the desired level of process consolidation. Therefore, we introduce here the concept of *process integration level* that includes both the business integration level and the IT integration level. The argument is that there can only be one 'desired' level of integration which can be decided upon, which then implies the levels of business integration and IT integration. The proposed process integration levels and the associated business/IT integration levels have been displayed in Figure 8.4. The figure shows that for each process integration level there exist only one suitable IT integration level, and vice versa.

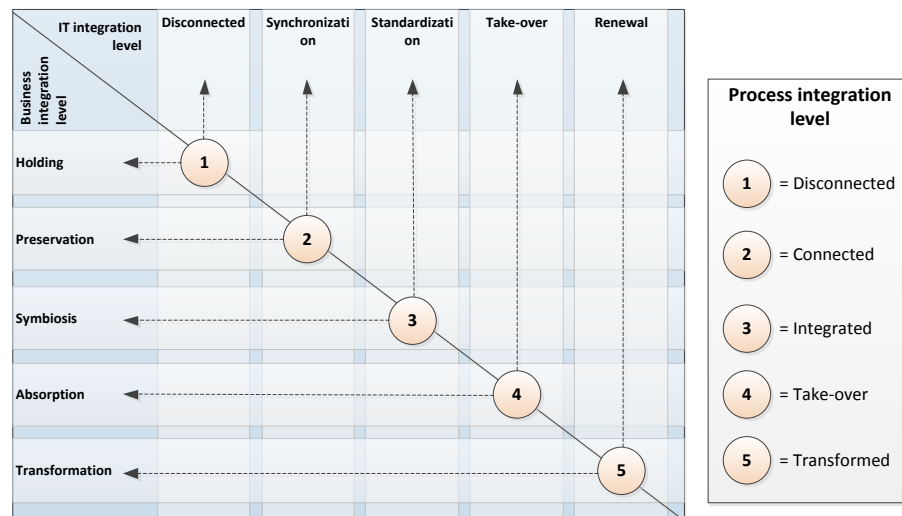


Figure 8.4: Proposed levels of process integration and the associated business and IT integration levels

The case studies support the idea that any deviations from a process integration level will not be sustainable. Prior to initiating the post-merger integration, an organization therefore has to consider the merger objectives and the merger context to decide to what extent the business processes must be integrated. The implications on the acquirer and acquired business processes have been depicted in Figure 8.5. When this decision has been made the orga-

nization must prepare both the business and IT on the upcoming changes. A different perception on the desired integration level between business and IT is likely to cause implementation issues.

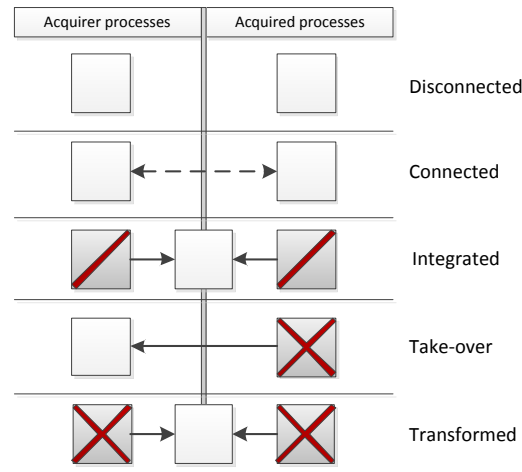


Figure 8.5: The process integration levels correspond to a desired situation concerning the business processes of the new organization

8.4 Validation

The findings from this research are validated by considering scientific literature. A number of articles and books are studied to see whether the developed ideas and concepts fit into the body of knowledge that is already available. The goals of this chapter are to put the research findings into perspective and to obtain a more holistic portrayal of the post-merger integration. This chapter also serves as a generalizability check to see if there exists research that can either support these findings or prove them wrong.

8.4.1 Factor/Effects Model

A number of adaptations have been made to the initial factor/effects model from Schonewille and Bouwman. The most radical change is the introduction of the 'factor/effect' concept, which says that PMI effects have also been identified as being PMI factors during the integration process. This concept finds support in scientific publications on both mergers & acquisitions and enterprise integration, that emphasize the need to demonstrate positive results during the integration. Freitag et al. (2010) say that demonstrating early wins is one of the key success factors in post-merger integration. This supports the idea that effects from the integration have an impact on the integration itself, and do not only occur at the end of the PMI process. Similarly, Galpin and Herndon (2007) name measurement and feedback towards management and employees as an important aspect to consider already in an early stage of the

M&A. Umble et al. (2003) also argue for managing and communicating the effects in an enterprise integration context. These statements clearly show that effects of the integration must also be managed during the process, similar to PMI factors.

8.4.2 Integration Level Contingency

Literature that compares the characteristics of a business integration and an IT integration is scarce. Zaheer et al. (2013) argue that the integration level should be carefully decided upon considering the desired level of target autonomy and complementarity, but they do not make implications on how to execute the integration process. Ellis (2004) has however indicated typical characteristics of different business integration levels in M&A, which correspond largely with what has been found in this research. She characterizes an absorption approach with a 'predetermined and speedy manner', which corresponds to a high speed and strict project management in the factor/effect model. A symbiotic approach is characterized by a initial period of preservation and maintaining a slow pace of integration to allow for the identification of best practices. In the factor/effect model this is a low speed and a loose project management. Finally, Gomes et al. (2013) argue that there does not exist a "right" speed at which to perform the integration process, but rather support a contingency approach. They argue similarly for the post-acquisition leadership style, and state that contingency approaches to post-acquisition integration have increased attention in recent literature. It is concluded that other authors support the idea that there exists a contingency on integration level, which is also found in this research's findings.

8.4.3 Match Business/IT Integration Levels

Wijnhoven et al. (2006) take an business/IT alignment perspective in considering IT integration in an M&A context. Their approach shows a number of similarities to the proposed process integration level concept. First of all, Wijnhoven et al. recognize that the business integration strategy and the IT integration strategy should be closely linked. They argue that the IT integration strategy should follow from the merger objectives, in which they define merger objectives as what has been defined in our research as business integration level. In between business integration level and IT integration level they have used three categories they call IT integration objective: complete integration, partial integration, and co-existence. Impact on business processes are mentioned in their article, and they support the idea that both from a business perspective, as from an IT perspective, the choice for integration level impacts the business processes. In studying four hospital cases they have used a slightly different perception of the integration level, which makes it difficult to validate the process integration level concept with their cases. Nevertheless from information given in the article, the process integration level seems to be able to explain the cases. Furthermore, Wijnhoven et al. state an interesting condition that is directly applicable to one of the cases from this research: *"IT-projects that are conditional to the integration must be working well already."*

Larsen (2005) also relates business integration level to IT integration level. He refers to data from Accenture (2004) that show that there should indeed be

a match between the levels and they state that a severe mismatch can lead to IT overspending (e.g. doing a complete IT integration for a holding company) or to insufficient support for business processes (e.g. aggregating IT for a fully integrated company). Their alignment of integration levels however is much more flexible than what is proposed in the process integration level concept, and they have four integration levels that are somewhat broader defined and therefore slightly overlap. A significant difference is that they have a rather simplified view on managing a post-merger integration, for in their perception the acquirer firm now owns the acquired company and can do with it whatever it wants. They do not consider the pre-merger negotiations and potential conditions for merging. The process integration level is in that sense better equipped to deal with these considerations. Furthermore, they quote one of the Golden Rules of IT integration from the Boston Consulting Group: *"choose from an existing system landscape - do not build a third."*

Freitag et al. (2010) propose a method for consolidating application landscapes in a post-merger context, which they have based on the TOGAF Architecture Development Method. Included early in their method, right after the establishment of a governance model is the step: 'understand and document business target model'. In the light of the process integration level, this closely corresponds to deciding on the process integration level prior to developing an IT integration plan. Here, the business requirements are taken into account and are expected to lead to a decision on IT integration level. Different is their dedication for using TOGAF as the framework to guide post-merger integration, which in the view of this research is perhaps somewhat too high-level to apply to the case interviews.

Lundqvist (2012) associates business process re-engineering with post-merger integration. In his view, business process re-engineering is a rather technical approach and it is achieved through IT. This slightly conflicts with the view proposed in this research namely that post-merger process integration is achieved through the reciprocation of IT and business together.

Finally, another publication that touches upon a similar conclusion to this research is Marks and Mirvis (2011). They hypothesize that psychological preparation of staff regarding the effects of the merger is important, because if they are given a realistic view on what the integration will imply, they are quicker to recover from negative effects. This research hypothesis has not yet been proven but it indicates that communicating 'the right' integration level to staff will benefit the PMI. Ellis et al. (2009) also research the staff's perception of justice in M&A's which also related to this topic.

8.5 Discussion

This research has looked into the role of IT in a post-merger integration. The post-merger phase has been modeled as a business integration and an IT integration that run in parallel and that have an impact on each other during integration activities. It is demonstrated how the factor/effect model can successfully describe the post-merger integration activities and can give an indication as to how reciprocation between business and IT takes place. Discussing the application of the model, it is noted that many causal relationships that have been found in the cases have found to be case specific. Integration level

contingency has been identified as the most important mechanism to explain this observation. Impact relationships however, have shown to be able to indicate through which factor/effects business and IT can have an impact on each other. It is argued that such relations are generalizable to a higher extent. From different viewpoints it has been confirmed that an IT integration can not be considered and managed in isolation from the business, because there exist many complex relationships between business and IT. Enterprise-wide information systems have such an impact on the business processes of an organization that there must be close correspondence of the integration levels regarding business and IT. A new concept has been introduced in order to support this observation, the process integration level. In applying the concept of process integration level, issues that occurred in the two studied cases could be elegantly explained. Many interviewees have pointed towards the mismatch in business and IT integration levels and the link that they have observed towards business processes. In discussing the validity of the process integration level, it is questioned whether deviations from the defined levels can or cannot be sustainable in other PMI contexts. It is clear that IT in itself is not capable of lifting the business to a new level of integration, but what would it mean if businesses are consolidated to a higher level than IT? It is hypothesized that the influence of IT in defining business processes is such that a business cannot adhere to the same processes without utilizing similar information systems. This is supported by an interviewee that said in his view, the business should integrate up to a level where IT becomes an obstacle for further integration. When IT is then integrated, it is clear what the business processes will need to be, and that there is commitment from the business to adopt the new system. This view illustrates a type of ceiling that IT poses onto the business in terms of integration possibilities. It is therefore hypothesized that the process integration level can indeed be applied to any PMI context to identify mismatches between business and IT. This hypothesis is only valid within the limitations presented below.

8.5.1 Limitations

This has been an exploratory research with an open approach. The findings that have been presented in this report must be considered within the limitations presented in this subsection.

Horizontal Mergers

Although the field of research is about mergers & acquisitions in general, it is noted that in the two case studies only horizontal mergers have been considered. While M&A covers the combination of any two firms, horizontal mergers only include the amalgamation of two competitors, which can be characterized by high similarity of businesses. This has implications on the issues and complexities that might arise from the merger. For both the business integration and the IT integration it may define to a large extent the difficulties and challenges that can be encountered. It should therefore be clear that the concepts presented in this report have not been tested on any other type of merger than horizontal mergers, therefore the validity is only limited to this type of deals.

Transport Sector

Two cases in the same sector have been considered. The reason for selecting the transport sector has been that it is considered a relatively static business, that would not change radically as a result of the merger. This has provided a static environment in which IT integration could be studied. This design choice has therefore attempted to minimize the limitations that are the result of single sector research, in which the goal has been to consider IT integration as independent from the industry as possible. However it must be noted that this nevertheless has an impact on the generalizability of the research findings across industries. Additional research in other sectors should be performed to test the introduced concepts.

IT Integration

It is noted that there have been significant difficulties in integrating IT in both the cases that were studied. The analysis has therefore focused on explaining the issues that occurred and how this could be understood in terms of business/IT reciprocation. However, it would also be insightful to consider cases in which IT integration has been successfully performed after a merger, in order to understand both the positive and negative impact that are possible. This poses another limitation on the research performed; although similarities have been found across the two cases, they might not apply to cases in which IT is faced with far fewer implementation issues.

8.6 Recommendations

Whereas the advantages of in-depth case studies have been obvious, the main limitation is that both the data acquisition and the data analysis are very time consuming processes. The findings that have been presented in this report would ideally be verified and supported by yet more qualitative data in order to increase the generalizability. Considering the limitations stated in the previous subsection, it would be recommended to conduct research in order to understand whether the concepts from this report can be applied across merger types, across industries, and across success and failures of IT integration. On the one hand it would therefore be insightful to consider many different cases, but on the other hand this would yield substantial research efforts and may not be realistic. Quantitative methods in the form of questionnaires however, will not be capable of verifying or falsifying the concepts that were presented here, because they rely on a rooted understanding of the integration processes.

An important contribution of future research could be made on explicating the interaction effects between business and IT that occur in the post-merger integration. Many two-variable relationships have been found in this research, which have been combined into multi-variable relationships by producing chains of causalities. However, another important mechanism is to understand how moderating interactions take place and which factor/effects can moderate either a business or IT integration. Such effects have been very hard to identify during the data analysis, because of the observation that interviewees hardly ever presented this type of interaction due to the set up of the interview ques-

tions and focus. In future research, it is therefore recommended to take this analysis a step further and include concepts to address this form of interaction.

One of the goals of this research has been to contribute to the understanding of practioners in the field of M&A. The findings of this research would ideally be tested in an actual merger situation, to see how the understanding can improve decision making about the integration. The research findings argue for a close collaboration of business and IT and the necessary condition of matching integration levels. It would be extremely insightful to manage a post-merger integration in view of the process integration level, to see how this contributes to post-merger success.

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