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Consultants in the Post-Acquisition Integration of Information Systems

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Preface

This thesis was prepared at Copenhagen Business School in partial fulfillment of the requirements for acquiring the Master of Science degree in Business Administration and Information Systems. The thesis was supervised by Assistant Professor Stefan Henningsson, the Department of IT Management, CBS. The extent of this thesis is equivalent to 30 ECTS points.

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Abstract

Acquisitions are increasingly used as strategic means for companies to create value through synergies such as expansion and improved efficiency. In most cases though, companies fail to achieve the synergies as expected. Due to the direct link between post-acquisition integration success and performance, as well as IT as a key driver of synergies in M&A's, the post-acquisition IS integration becomes critical in achieving success. Some companies are very efficient in this process, while other companies are not. Common to all is that the post-acquisition IS integration process is a complex task that requires attention, competencies and expertise. The extant research literature on the topic explores whether it is possible for a serial acquiring company to obtain M&A integration capabilities based on its experience, and thus increase its rate of success. As most companies use consultants in relation to the post-acquisition integration of IS, their impact on the integration outcome is an important factor to consider, why the integration experience of a company alone cannot be seen as the sole factor for success. This study takes a first step in exploring the role of consultants in the integration of information systems following mergers and acquisitions. A conceptual model of the IS integration is presented together with a theoretical framework, based on a cross-field literature review. The framework is tested empirically through acquisitions performed by four large Danish manufacturing companies. Four types of consultant utilization are presented and supported by the empirical findings. The perception of the IS integration process assumed in the extant literature is discussed as the term 'resource bump' is introduced, referring to the temporary need for additional resources during the IS integration, which in most cases is filled by the four types of consultants. Three integration types are suggested, accounting for the integration strategies pursued by companies, determining the time and the size of the resource bump, and the use of consultants in the post-acquisition integration is considered in relation to these.

The findings of this thesis makes a delimited contribution to the extant knowledge body of information systems integration in mergers and acquisitions. Focusing academic attention on the field of IS integration in mergers and acquisitions might eventually lead better understanding of the process and of the resources used to perform the integration tasks, improving the IS integration capability across companies, enabling synergies and thus improving the currently lacking financial performance.

Keywords: Consultants, Information Systems, Mergers, Acquisitions, IS Integration, Post-acquisition Integration, Synergy

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Recurrently used terms

A Merger is the combination of two companies with no dominant part. Acquisitions happen when one dominant acquirer purchases a less dominate target. Information Systems are a natural part of all companies, supporting or enabling the processes of the organization. In most cases these are based on Information Technology, which refers to the electronically enabled processing, storage and presentation of information. The Resource-based View is an approach by which companies consist of resources and capabilities, which they use in their aim to achieve sustainable competitive advantage. Consultants are used in companies as resources or capabilities to achieve the goals and perform the tasks of the company. They work for Consultancies, which themselves are companies that are often utilized in the Integration of ***information systems*** following ***mergers and acquisitions***.

Abbreviations

M&A	Mergers and Acquisitions
IS	Information System
IT	Information Technology
RBV	Resource-based view
CIO	Chief Information Officer
PMI	Post-merger Integration / Post-acquisition Integration
ERP	Enterprise Resource Planning
SAP	Name of an ERP system

Chapter 1
Setting the stage

Companies are increasingly pursuing their corporate strategy through mergers and acquisitions (Calipha et al., 2010). Over the past decades, the amount of deals as well as the transaction values of corporate M&A's have increased heavily (Mehta & Hirschheim, 2004), resulting in 2010 in more than 40,000 announced deals world wide at a total transaction value of more than $2.4 trillion (Thomson Reuters, 2010).

Companies engage in M&A's to create value through scale or scope synergies, or through improved market position (Singh & Montgomery, 1987). Most synergies are dependent on some level of integration between the acquirer and the target (LaJoux, 1997). More than half of all planned synergies are directly dependent on IS integration (Sarrazin & West, 2011), which is considered a complex and challenging task (Mehta & Hirschheim, 2004). In this context integration experience is considered a relevant factor for the companies to succeed (Barkema & Schijven, 2008), though experience does not always imply learning (Henningsson, 2011b). Studies show that most acquisitions are financial failures (Christensen et al., 2011; Lubatkin, 1983), and that acquirers with no acquisition experience outperform experienced acquirers on average (Kengelbach et al., 2011). This suggests that the internal resources of the acquirer and target are not sufficient to determine the integration outcome.

According to Accenture (2002) more than half of all post-acquisition IS integration projects are utilizing from consultants. This number is estimated higher according to findings by researchers (Wirz & Lusti, 2004; Freitag et al., 2010). Thereby consultants are to a large extent involved in the post-acquisition integration of information systems. Consultants are used for different purposes on different levels of the organization (Meckl, 2003), and their experience can be drawn upon where the company itself has little expertise (LaJoux, 1997).

Despite the large involvement of external consultants in the post-acquisition integration of information systems, the area has not yet received any academic attention, why little is known about how companies use consultants in the integration process. Acknowledgement of the role of consultants and their impact on the integration of information systems following mergers and acquisitions might lead to improved understanding of the integration process and thus assist companies in improving their IS integration capabilities.

1.1 Research Question

The discussion above leads to the main research question that will drive this thesis forward:

> When do companies use consultants in the M&A integration of information systems, and how do they use them?

The M&A integration in this context, covers the integration of two or more companies following a merger or acquisition, including planning and execution of the tasks that lets the former separate businesses act as one. "When" refers to the situations where external expertise is being used in the M&A integration of IS and is concerned with the characteristics present in an M&A situation regarding the acquirer and the acquisition act. "When" is thereby focused on "What can be said about the acquisition or the process", for example in terms of the relative size between the merging companies, the IS integration strategy of the acquirer or the IT landscape of the merging units. "How" refers to the roles that the consultants assume throughout the integration and the tasks they are hired to perform. This can be translated to what kind of external work power that the company hires based on a given M&A integration, for example; whether consultants are hired to perform predefined tasks that the company already has people to do, and thus are seen as a heterogeneous resource supply when the demand is high during the M&A; whether they perform predefined tasks that are not within the competencies of the firm, or; whether they are involved in high-level planning and strategy definition.

1.2 Delimitation

The study is delimited to the involvement of consultants in the acquisitions and mergers performed by four companies. All the companies are large, private sector, manufacturing companies. The amount of companies included in the study as well as the type of companies limit the generalizability of the findings. As this study has relatively little prior work on which to build, the findings are not predictive in their nature and must thus be seen as a first step to understanding the role of consultants in post-merger integration of information systems.

1.3 Disposition

To further explore the research question throughout this thesis, chapter 3 makes a theoretical foundation for the research, looking into the main components of the topic. Based on this foundation, chapter 4 presents a theoretical framework that will be presented to guide the work throughout the study. The research question will be explored empirically through the theoretical framework and thus chapter 5 presents the empirics of this study, while chapter 6 presents, analyzes and discusses these findings. First, in chapter 2, the methodology of this thesis is briefly presented. A disposition of the document at hand is presented below:

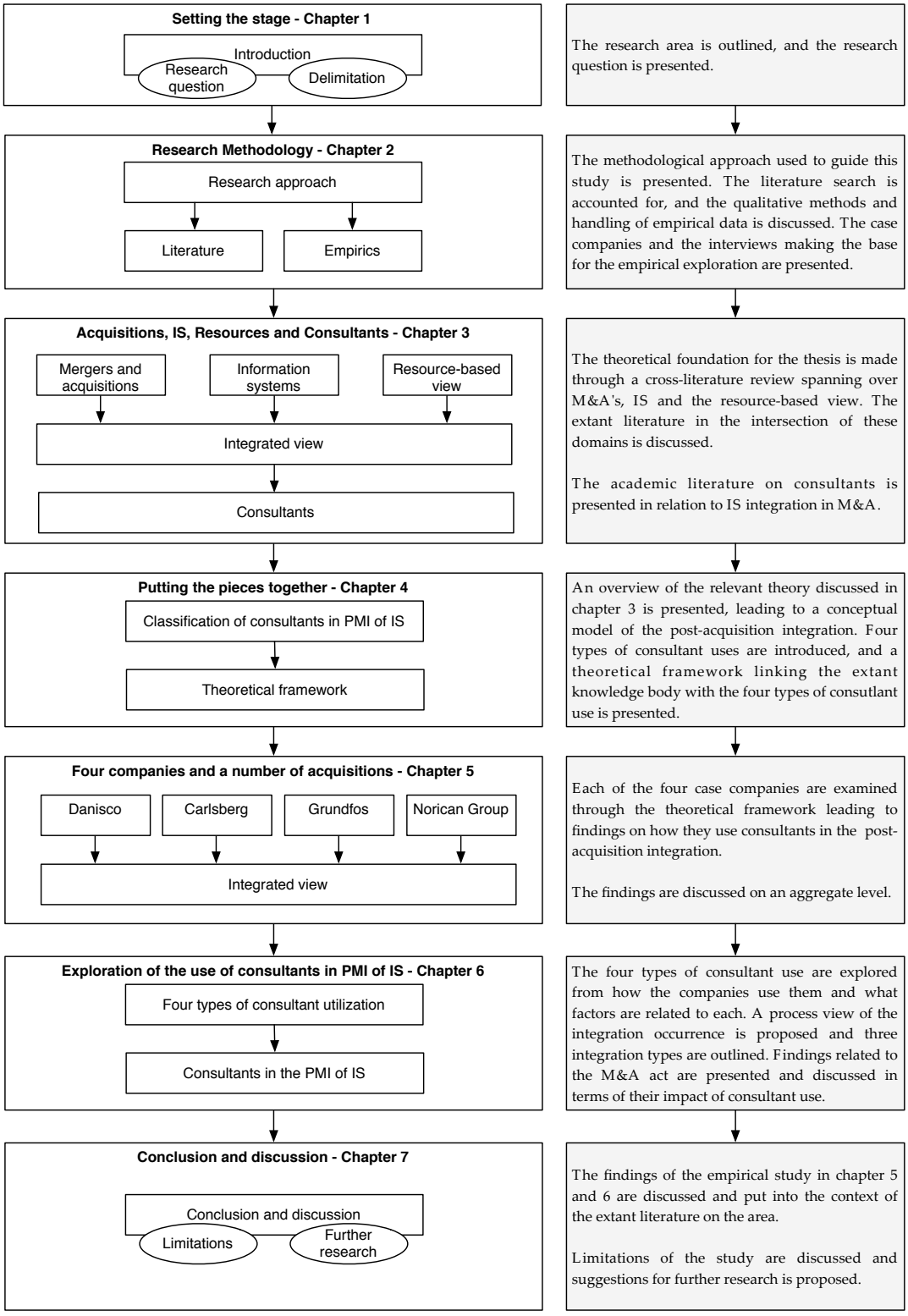

Figure 1-1 - Disposition for the document at hand

Chapter 2
Research Methodology

Given the nature of this being an exploratory study, reflection on the desired contribution of this thesis will assist in directing the research towards its objective of making a delimited contribution to the knowledge body on IS integration in M&A, through exploring and answering the research question. Thus this chapter will briefly present the research approach of the study, the use and perception of the relevant academic literature and present the empirical and analytical approach that will eventually lead to the findings, thereby contribution of this thesis.

2.1 Research approach

This thesis is considered to be a study of information systems, in the context of mergers and acquisitions. Therefore it can be perceived as IS research, spanning over the domains of M&A, the resource-based view and the limited domain of consultants. Nunamaker et al. (2001, p.90) defines research as a "systematic, intensive study directed toward fuller scientific knowledge of the subject studied". This approach to research assumes a positivistic paradigm due to its view on knowledge being accumulative towards a full understanding of the universe (see, for example Burrell & Morgan, 1979). The purpose of this study is to add to the body of knowledge regarding IS in M&A's, thus to some extent agreeing with the epistemological view that knowledge can be, at least somewhat, true, thereby confessing to the modified dualist view (Guba & Lincoln, 1994). Meantime, the ontological assumption behind this thesis contrasts with the positivistic paradigm by recognizing a "real", but imperfectly and probabilistically apprehendable reality (Guba & Lincoln, 1994). The approach of this study is therefore supported by the philosophy of critical realism, which is in harmony with the qualitative research method applied.

Gregor (2006) identifies (1) *analysis and description*, (2) *explanation*, (3) *prediction* and (4) *prescription* as four types of goals for theory, from where she derives five types of IS research:

> *Analytic* studies analyze and describe the state of a phenomenon, rather than making predictions or generalizations.
>
> *Explanatory* studies are concerned with *how* and *why* a phenomenon occurs, focusing on understanding of concepts rather than testing the predictions.
>
> *Predictive* studies are focused on *what* will occur in the future, thus being less concerned with the cause.
>
> *Explanation and prediction* (EP) provides understanding of the causes as well as prediction of a phenomenon.

Design and action focuses on how to do something from a practical perspective. This field is especially related to the IS development process.

This study can be characterized as analytical and partly explanatory in accordance with Gregors (2006) types of IS research, as it is concerned with understanding the context of when companies use consultants in their post-acquisition integration. Furthermore, the output of the study will naturally lead to findings that can be used for predictions of the use of consultants in forthcoming acquisitions, but the focus for this thesis is to understand and not to predict. This is connected with the very limited extant literature on the use of consultants in post-acquisition integration of information systems, and the non-existence of literature focusing on the use of consultants in this context, leading to exploration through analysis and explanation being the key in in making the foundation for further research in the topic.

2.2 Literature

The literature review of this thesis utilizes from knowledge gathered from different fields and knowledge made available through other sources than only theoretical academic contributions, thus making a solid foundation for exploring the phenomenon that is not yet covered by extant theories (Carlsson et al., 2010). The driver for the literature section is a focus on the outcome (Carlsson et al., 2010), which is to explore companies' use of consultants in the post-merger integration of information systems. The search for information lead to the strategic M&A literature and the literature concerned with IT in M&A's. Furthermore, limited IS and IT literature was concerned with theories and concepts that was found applicable in this context. Despite extensive effort, the search on consultants' role resulted in very limited findings, both regarding consultants in PMI and in IT. Finally, the search lead to the resource-based view as a potential clutch between the IS, M&A literature and consultants. The searches for academic literature were conducted through a series of academic databases[1]. Additional knowledge related to the topic was found primarily from financial databases[2] and consultancy websites[3]. As the existing literature was fragmented and did not provide a sufficient foundation to explore the research area, a theoretical framework is proposed based on the cross-field literature review presented in this thesis.

[1] Databases used most frequently includes: Business Source Complete, EBSCOHost databases, Science Direct, Academic Search Elite, JSTOR, Sage Journals Online, Springer Link. Accessed through the CBS library website.

[2] For example Zephyr and Thomson ONE Banker

[3] Consultancy websites searched includes the websites of Accenture, Capgemini, IBM, Tata Consultancy Services, Deloitte, KPMG, PricewaterhouseCoopers, PA Consultig, McKinsey and Boston Consulting Group. See Appendix A for a list of the consultancy websites searched as part of this study.

2.3 Empirics and analysis

This study utilizes from a qualitative research design to explore the research topic. Interviews with key informants are used as the primary instrument of the empirical study, supported by secondary data gathered in the organizations of the respondents (Andersen, 2005). This approach was taken mainly because of three conditions; First, mergers and acquisitions are complex activities in a corporate context and the integration efforts are rarely alike across companies or acquisitions, which would complete quantitative analysis. Second, the specific area explored in this thesis has not previously been the center of any available research studies. Third, M&A's are often used as a means to achieve corporate strategy (Mehta & Hirschheim, 2004), why its strategic importance means that data can be difficult to access. Interviews initially seemed to provide data that satisfyingly coped with these conditions.

As the purpose is to study companies' use of consultants in M&A integration, it is relevant to limit the sample of explored companies, to companies who have actually experienced mergers or acquisitions, whereby this can be characterized as a phenomenological study (Rudestam & Newton, 2007). This approach is in contrast to random samples where all members of the population, in this case companies, have an equal chance of selection (Marshall, 1996, p.522) – an approach that is are widely used, especially in quantative studies. Therefore, criteria sampling is used for this study (Rudestam & Newton, 2007), whereby the participants match a set of criteria defined for the study. The criteria limited the participating organizations to be:

- Private sector companies (as opposed to public sector organizations)
- Manufacturing companies, manufacturing physical products
- Large companies with more than 1,000 employees
- Business activities on more than one continent
- M&A experience from at least one acquisition in the past 5 years
- Based in Denmark (for access to key employees)

Based on these criteria, a series of companies were identified, from where key employees in relation to post-merger IS integration were contacted via phone and asked if they were willing to participate in interviews on the topic. In this context, the employees were sent a written introduction to the study and the purpose of their participation upon request (See Appendix B). People from all of the companies that were contacted in the first round agreed to participate in the interviews that were conducted during June and July 2011.

	Carlsberg	Danisco	Grundfos	Norican Group
Business area	Beer manufacturer	Food ingredients and enzymes manufacturer	Pump manufacturer	Industrial equipment manufacturer
Employees	38,000	6,800	16,600	2,300
Global presence	Global	Global	Global	Global
M&A experience	Medium	High	High	Low
Interviews	CIO IT Asset Manager	CIO	CIO IS Manager	Program Manager

Table 2-1 - Companies and respondents included in this study. See Appendix B for an overview of the key informants.

The six interviews were conducted as open-ended interviews (Andersen, 2005), based on a topic-driven interview guide as well as mind map (Appendix C and Appendix E). The interview guide was based on the research question as well as the extant literature relevant to the topic. The interviews were recorded and field notes were taken during the process, ensuring high fidelity and medium structure (Rudestam & Newton, 2007). Eventually, the interviews were codified according to a set of categories (Appendix G) based on the theoretical framework (Miles & Huberman, 1994).

In addition to the interviews, secondary data (Andersen, 2005) was studied related to the companies and their acquisitions. This data was collected after the individual interviews and consists primarily of the companies' annual reports as well as press releases following mergers or acquisitions. This data was used to confirm or clarify the statements of the respondents and additionally provided insight beyond the scope of the interviews regarding corporate strategy, integration strategy, size and geographies of the company, which turned out to be relevant information related to the integration of IS following mergers. Prior to the interviews, the M&A activity of the respondent companies was extracted from a financial database to provide initial understanding of the companies experience within the field. A table of the secondary data used in this thesis is available in Appendix F.

2.3.1 Reliability and validity

All of the interviews were transcribed following the same procedure, comments to each section were outlined as part of the transcription document, and the sections were numbered consecutively to create overview as references are used in the chapter 5 and chapter 6 of this thesis. The raw data was codified consistently (Layder, 1998) into a theoretical framework presented in chapter 4, which is based on the relevant theory presented in the next chapter. This structured, consistent and well-documented approach ensures that the study is replicable, and thus can be considered to have high reliability (Rudestam & Newton, 2007).

The focus of this thesis is on a corporate level, rather than on an individual level, i.e. it is the company's use of consultants for PMI of IS that is being explored, rather than the individual respondent. In two of the companies participating in this study, two separate interviews were conducted with different people; in the remaining two companies one interview with a key informant was performed. In the two cases where two interviews were performed, there was a very high degree of consistency in the statements they made, which testifies of high internal validity of the study (Rudestam & Newton, 2007). Furthermore, secondary data was used to assess the statements of the respondents, underpinning their testimonials, again ensuring high internal validity. At this stage of the research, with the research question in mind, one key respondent is considered enough to get a fairly accurate picture of the use of consultants in the companies. The topics discussed in the interviews are not topics of high subjectivity, nor is it sensitive information for the respondents, why there is limited reason to reconfirm all the statements of the respondents on a detail level through a second interview.

Chapter 3

Acquisitions, Information Systems, Resources and Consultants

The question of how and when companies use consultants for post-merger integration of information systems cannot be assigned to a relatively narrow, existing area of research. Rather, the focus of this study spans across different theoretical domains. Ask for example the question whether the post-merger integration of IS should be viewed and explained based on the knowledge body of information systems? An argument for this could be that IS focuses on the implementation of technical systems as well as their users and thus will provide elements to understand and analyze the topic. A counterargument is that the integration is caused by – and is within the domain of – a merger or an acquisition, why the academic work of this field should drive the theoretical foundation of the studies. In addition, none of these academic disciplines have tradition for exploring the role of consultants, which again complicate a narrow approach. Instead, the relevant knowledge bodies need to be integrated to provide a strong foundation for the study, which is done through the literature review presented in this chapter. The chapter is structured as follows: First, the theory on mergers and acquisitions is briefly accounted for, in order to offer understanding of the complex and non-permanent domain that M&A's create. Next, relevant themes of the literature on information systems are presented, related to what information systems are and how they fit into corporations. Third, the resource-based view is outlined to construct a common set of references to what companies consist of. Fourth, literature that spans across these domains is presented to give an integrated perspective of the area, which is the focus of this thesis. And finally, the very limited theory regarding the use of consultants in M&A and within the IS domain is presented and discussed. Based on the presentation and discussion of these separate and integrated knowledge bodies, the next chapter presents a theoretical framework to further guide this study.

3.1 Mergers and Acquisitions

Since the conglomerate merger wave in the 1960's, mergers and acquisitions as a phenomenon have been studied very intensively in the research literature (Haleblian et al., 2009), with the intensity of attention increasing with time. This is due to mergers and acquisitions increasing popularity as a part of corporate strategy, and has resulted in the definition of the M&A concept to become more vague and the meaning of the terms is becoming broader. In this connection Bannert-Thurner (2005) points to how M&A is increasingly being used to also cover strategic alliances and other kinds of

corporate fusions. Meanwhile, per definition mergers and acquisitions cover the cases where the ownership of one company, or part of a company, is transferred into another company, or in other words, cases where two companies are legally combined (LaJoux, 1997). In most research literature, the terms are used interchangeably (see, for example, LaJoux, 1997; Mehta & Hirschheim, 2007; Bogetoft & Wang, 2005), and refer to the situations where one company is absorbed by another, regardless of the relative size of the two companies. However, some researchers distinguish between the two terms, defining mergers as the neutral combination of two equal entities, while acquisitions are defined as one powerful organizations takeover of a less powerful organization (Henningsson, 2008; Giacomazzi et al., 1997). Additionally, acquisitions can be characterized as cash transactions, while mergers are transactions where the two companies shares are traded into shares of the new, combined company, thus being characterized as a transaction without cash (Hubbard, 1999). Despite the cash element, corporate consolidations often have elements of both acquisitions and mergers (Pilié, 1969), and the transaction types are rarely found in their extremes, but somewhere rather as a mix between the two (Henningsson, 2008; Hubbard, 1999).
As this thesis examines IS integration within the domain of mergers and acquisitions, for a great part the terms will be used interchangeably as many elements are the same no matter whether the transaction type is one or another. Nonetheless, the transaction type is expected to have great influence on certain elements of the IS integration, and in these cases the distinction will be emphasized;

> *Acquisitions* are referred to as the act where one relatively powerful company acquires another company, referred to as a target.
>
> *Mergers*, in this context, are the cases where two companies of relatively equal size, with no dominant part, are combined.

In some cases, companies acquire a strategic business unit (SBU) from another corporation or conglomerate. In the case, that the SBU is an integral part of the corporation, the SBU is carved out of the mother organization before it is transferred to the new organization (LaJoux, 1997). Divestitures, or spin-offs, as this procedure is called, are not covered explicitly in this thesis, but is covered from both the divesting business' and the acquirers perspective in research by Böhm et al. (2011).

3.1.1 Different types of mergers and acquisitions

Based on the business characteristics of the two merging companies, acquisitions can be vertical, horizontal or conglomerate (Brealey et al., 2006; LaJoux, 1997). Horizontal and vertical acquisitions are linked to the generic value chain (see Porter, 1985). In horizontal acquisitions, the acquiring company and the target are in the same line of business, for example by making products or delivering services that are closely related. In vertical acquisitions, a company expands in the value chain by acquiring a supplier or a customer. Forward integration happens when the company expands to include an activity that processes the finished products or services of the company, while backward integration is expanding to delivering the input for the company (Perry, 1989).

Conglomerate acquisitions are performed when a company acquirers a target and thereby expands into a whole new line of business (Brealey et al., 2006). In conglomerate acquisitions, it is often the perception that the target is not integrated into the acquiring organization, and that none, or very few, of the existing assets of the acquiring company can be used to leverage synergies in the new, combined organization. Diagonal acquisitions is therefore sometimes used to describe the cases where a new product or service line related to the existing core business is acquired, and where current distribution channels or cross-sale can be utilized to drive synergies (LaJoux, 1997). In recent years, the most frequently used acquisition type has been horizontal, due to large focus on synergies through cost-savings (Kengelbach & Roos, 2011).

3.1.2 M&A as a strategic means

Acquisitions are considered a common managerial strategy that, among other objectives, is used by firms to gain access to new markets, gain or improve their competitive advantage, or get access to resources such as technology or people (Calipha et al., 2010). Much literature points to value creation as the overall motivation to acquire a company (Bannert-Thurner, 2005). This happens through synergies that are based on the consolidation of the two companies, where the result is greater than the sum of the contributing parts (Melicher & Hempel, 1971). Christensen et al. (2011) points out performance improvement and business model reinvention as the two major reasons for acquisitions. Zollo and Meier (2008) focuses on cost-driven and revenue-driven acquisitions, where cost-driven synergies cuts cost redundancies from the combined company, and revenue-driven synergies are related to accessing new markets and customers or to channeling acquired products to existing markets. This is in line with *economics of scale* and *growth*, as the two major reasons for why companies make acquisitions (see for example, Singh & Montgomery, 1987).

Although a great part of the M&A literature focuses on value creation in one way or another as the single motivator for acquisitions, there might also be other reasons for why companies engage in M&A's. An extensive literature review by Haleblian et al. (2009) identifies a list of acquisition antecedents, which they fit into four categories: Value creation, managerial self-interest, environmental factors and firm characteristics. This suggests that there might be motives behind acquisitions that are less focused on creating value for the acquirer, and where value creation of the firm is even in conflict with for instance the executive suites self-interest. For example, they might be motivated to grow their company though acquisitions as their compensation will increase with the revenue of the firm (Haleblian et al., 2009). In addition to this, there might be other motives for empire building (Girma et al., 2006) that will destroy value rather than creating it for the acquiring firm (Haleblian et al., 2009).

Value Creation	Managerial Self-Interest	Environmental Factors	Firm Characteristics
Market power	Compensation	Environmental uncertainty	Acquisition experience
Efficiency	Hubris	Regulation	Firm strategy and position
Resource redeployment	Target defense tactics	Imitation	
Market discipline		Resource dependence	
		Network ties	

Table 3-1 - Motivations for mergers and acquisitions (Haleblian et al. 2009)

3.1.3 Phases in the M&A process

The M&A process is lengthy, starting with the initial assessment of the target and finishing somewhat after the integration, often several years after the deal. The process is often divided into phases, where researchers suggest from two up to seven phases (Calipha et al., 2010). What is common in all theory concerned with M&A phases is that there are pre-deal and post-deal phases. In the extant M&A literature, researchers tend to focus on the pre-deal phases rather than the post-acquisition integration (Johnston & Yetton, 1996).

A merger or acquisition involves a series of activities regardless of the phases that is used to describe it. These activities include strategy planning, target selection, due diligence, deal signing, integration planning, integration, assessment (Parenteau & Weston, 2003). Meckl (2003) outlines these activities, which can be allocated to three M&A phases in accordance with Henningsson (2008).

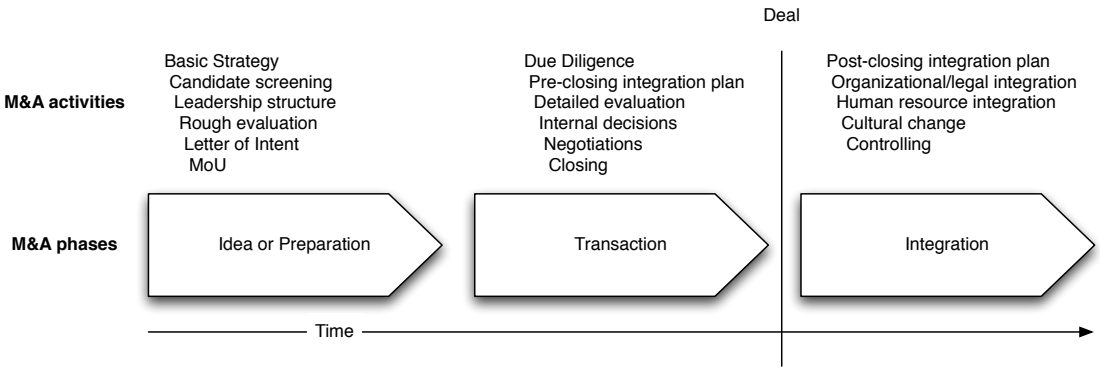

Figure 3-1 - M&A activities in three phases. Adapted from Henningsson (2008) and Meckl (2003).

Often the integration planning and integration activities outlined in the M&A literature does not include IS integration as an explicit activity, despite that the synergies identified in the pre-merger or transaction phases are directly dependent on the integration of IS (Sarrazin & West, 2011). This thesis focuses mainly on the post-deal integration phase, with the integration of IS as the focal activity.

3.1.4 Post-acquisition integration

Post-acquisition integration (PMI[4]) is the act of combining two companies into one, not from a legal perspective - that happens when the deal is signed, but in reality (LaJoux, 1997). The post-acquisition integration is considered an extremely critical activity in the merger and acquisition process, since it is the integration of the acquirer and the target that drives the expected value-creating synergies. The integration process covers many aspects of the new, combined organization, including HR, business process, and IT. Acquirers use different integration strategies, depending on the motives for the acquisition, to integrate targets. Saint-Onge and Chatzkel (2009) describes four of these, commonly used integration strategies:

> The *Add-On* strategy preserves the new business unit, to a large extent keeping it unchanged.
>
> In *Absorption*, the acquiring company absorbs the target, causing business processes, business management philosophy, management systems and goals of the target company to be changed into alignment with the acquirer.
>
> *Best of Both* integration strategies are used in the cases where reevaluations of both companies' practices are performed and the best practices are selected and implemented.
>
> Pursuing a *Breakthrough* integration strategy means that the company is not only choosing between the best practices or business processes of the two entities, but in addition also looking into and applying best practices from external sources.

3.1.5 Experience in M&A

A great part of acquisitions are performed by serial acquirers, which are companies who on average acquire at least two companies every three years (Kengelbach et al., 2011). This might be explained by the observation that, when a company acquires another, the likelihood for that company to make a subsequent acquisition increases significantly (Haleblian et al., 2009). In the vast amount of acquisitions that are performed by serial acquirers, the acquiring company already has experience with the integration process. For most part, experience is considered solely as a positive factor in the M&A literature (see, for example, LaJoux, 1997; Lubatkin, 1983), with a learning-curve that leads a positive return on experience (Haleblian & Finkelstein, 1999). Nonetheless, a report from The Boston Consulting Group analyzing 26,000 deals in the years 1988 through 2010 shows that on average, unique acquisitions outperform the acquisitions of serial acquirers (Kengelbach et al., 2011). Recent literature on the topic points out that experience from one acquisition may not be applicable in a subsequent acquisition (Saint-Onge & Chatzkel, 2009), and that experience may not automatically imply learning (Barkema & Schijven, 2008). Nonetheless, experience is expected to have impact on the way acquirers approach the post-acquisition integration.

[4] PMI is the common term used for both post-merger and post-acquisition integration.

3.1.6 Challenges and reasons for failure

Despite the popularity of mergers and acquisitions as a corporate strategy to expand into new markets, get access to resources, benefit from economies of scale or harvest other synergies, the failure rate of acquisitions are fairly high (Calipha et al., 2010). Academic research and reports from consulting companies thus estimates that 55% up to 90% of all mergers and acquisitions fail to deliver the expected value (Christensen et al., 2011; Capgemini, 2007; Mehta & Hirschheim, 2007). In many cases, the value of the combined companies even decreases to less, than the value of the acquirer prior to the deal (Tetenbaum, 1999). The popularity of M&A as strategic means is not derived from the historical success of acquisitions, as researchers and statistics for almost a century have pointed out that on average mergers and acquisitions fail to reveal any real gains (Lubatkin, 1983).

The failure to deliver economic value comes from the absence of expected synergies, either due to imprudent target selection, overpayment compared what can be justified by cost synergies, or ineffective integration (Barkema & Schijven, 2008; Christensen et al., 2011). The post-acquisition is often considered to be the main challenge in the M&A process (LaJoux, 1997). Diverse organizational cultures across the entities and lacking top management involvement are critical components in the integration that are often assumed to lead failure if not properly handled (Agrawal et al., 2011). Additionally, challenges related to information systems integration are one of the most cited reasons for M&A failure (Rodgers, 2005). This is especially critical as most of the expected synergies in M&A's are enabled by IS, as it will be the case with synergies within supply chain, procurement, capacity sharing and optimization, etc. As the IS integration is considered one of the main reason for M&A failure, the integration of IS in mergers and acquisitions deserves attention from a research perspective. Building on the extant literature on IS in M&A, this thesis aims at answering the research question, and thereby to shed light on the IS integration, providing a better understanding of the process. Thus the next section will present the concepts of information systems, while a later section in this chapter will focus on the extant academic knowledge body on IS integration in acquisitions.

3.2 Information Systems

Information systems are natural components of any organization, which organizations would not be able to survive without (Vidgen et al., 2002). Accordingly, when one company acquirers another, it will integrate the information systems of the two entities to gain synergies across the organizations. McKinsey & Co shows that 50 to 60 percent of the synergies expected to create value in mergers and acquisitions are strongly related to information technology (Sarrazin & West, 2011). Though the technical integration of information technology and migration of data in the post-acquisition integration are critical elements, they do not deliver these synergies by themselves. They need to be put into an organizational context to deliver value to the company. Therefore, this thesis focuses on the integration of information systems in the post-acquisition phase, rather than merely the technical integration of IT.

Information systems cover several aspects of the organization, including the utilization of IT. In this section, information systems are introduced and defined, and the role IT is viewed in the context of IS.

3.2.1 Information Systems and Information Technology

As it is also the case with the M&A literature, researchers are of dissimilar opinions on how to define information systems, which consequently leaves IS as a discipline very broadly defined (Avison & Elliot, 2006). This is due to the notion that the area has had difficulties in establishing itself as a coherent research area since its origin (DeLone & McLean, 1992). When broken down on a word basis, information systems consist of two elements; *Information* and *systems*.

> *Information* is based on data that embodies a formalized representation of the world. Data turns into information when it is interpreted by human beings (Henningsson, 2008).
>
> *Systems*, according to systems theory, are a set of interrelated elements, which exist for some purpose (Henningsson, 2008). They have a set of inputs and outputs, as well as a series of processes that convert inputs into outputs (Avison & Fitzgerald, 2006).

Some researchers point out that IS in itself is independent of technology, but most often utilize from technology to leverage the value of the systems (Vidgen et al., 2002; Avison & Elliot, 2006), while others state that there is a causal relation between IS and technology. The strong link between IS and technology has always been present, as IS research intensity has increased together with the fast growing adoption of IT throughout the past four decades (Davis et al., 2005). Hirschheim and his colleagues (1995, p.xi) define information systems development as "the application of information technologies […] to solve and address problems in managing and coordinating modern organizations". This definition points out that information systems are technology-enabled systems whose purpose is to cater a business need. Furthermore, their focus on coordination and management of organizations leads attention to the human aspect of information systems. Lee (2001) emphasizes the human aspect of information systems by stating that information systems research study the phenomena that emerge when technological and social systems interact. Avison and Fitzgerald (2006) outline that information systems in an organization "provide processes and information useful to its members and clients", and that IS will help it operate more effectively. Moreover, they introduce the term of *formalized information systems*, characterizing them as systems that provide information in a predefined manner, and on a regular basis. These systems are in contrast to the less formalized information systems, such as the 'grapevine' (Vidgen et al., 2002; Avison & Elliot, 2006), including gossip, rumors and other informal meetings internal and external to the organization. Finally, Avison and Fitzgerald (2006) use the term *computer-based information systems*, to refer to IT-based information systems that can provide purposeful information derived from data, fast and accurately, with the correct level of detail. Computerized information systems are formal in their nature,

and must be recognized as strategically important and essential to most corporations (Vidgen et al., 2002).

Further in this thesis, the term *information systems* will be used to cover formalized, IT-based information systems in organizations, which supports business processes and provide its users with information that help them in performing their respective tasks.

IT, which IS' are partly based on in this thesis, is defined as the "total investment in computing and communications" by a company (Weill & Broadbent, 1998, p.6). This includes hardware, software, telecommunications, devices for data collection and representation, and all electronically stored data. It covers investments in software and hardware that is located in-house, operated, serviced or developed internally in the organization, as well as investments utilizing from outsourcing to external suppliers (Weill & Broadbent, 1998).

With the definitions of information systems and information technology at hand, IS and IT can be viewed in a corporate context.

3.2.2 Information Systems in a corporate context

IT can be seen merely as given types of technology, and the development, operation and support of that technology. However, in a corporate context Weill and Broadbent (1998) presents the objective of IT investments, and thereby the purpose of IT from a corporate view, as to provide business value in two related ways: i.e. to successfully implement current strategies and to enable new strategies. This aligns IT and IS to the degree where distinctions between the terms will be relevant only in very few cases, why this thesis will use IS going forward, to also include the technical aspect of information systems. A few examples of information systems legitimize this, as they include payroll, invoicing, project planning, decision support, CRM, and ERP systems (Avison & Fitzgerald, 2006). When examined in a corporate context, it can be argued that IS and IT are approaching each other. This happens because companies, from a business perspective, cannot do without information systems and that these are IT-enabled (Vidgen et al., 2002), and because the purpose of IT becomes very oriented towards business when viewed from a company's perspective.

IS can be viewed on different levels in the organization, hence Weill, Broadbent and Clair (1994) define four different management objectives for IT in organizations: infrastructure, transactional, informational and strategic.

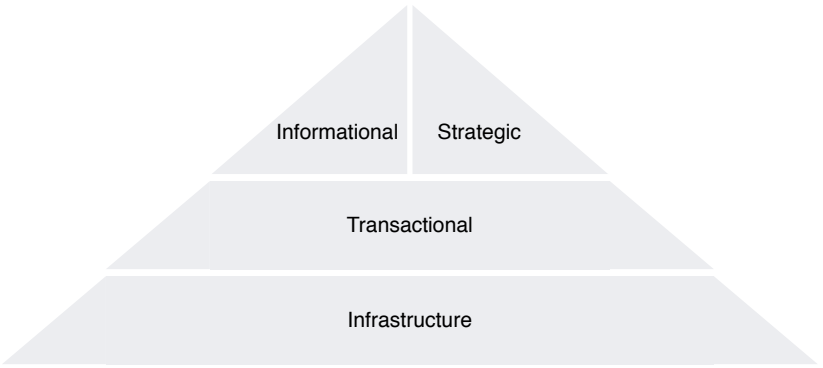

Figure 3-2 - Management Objectives for the Information Technology Portfolio; Weill, Broadbent and Clair (1994)

The infrastructure level of IS provides the organization with the foundation of IS, on which the other levels are built. The infrastructure capability consists of both technical and managerial capabilities that ensure that value-creating technologies can be developed and applied in the business. The services included in the infrastructure, are standardized for use of multiple IS across the organization on a shared basis. (Weill & Broadbent, 1998)

Transactional information systems "processes and automates the basic, repetitive transactions of the firm" (Weill & Broadbent, 1998, p.26). These systems handle a high volume of transactions, and include order processing, inventory control, accounts payable and receivable and other transactions. The transactional and the infrastructure level are essential, and required for a company to utilize from the informational and strategic level of IS (Weill & Broadbent, 1998).

The *informational* level of IS provides information that can be utilized from in managing the company. This is typically systems such as Executive Information Systems, or other systems that support decision making or planning on different levels of a company. This level of IS utilizes from the infrastructure, and the transactional level to be able to present data, information and knowledge (Weill et al., 1994).

Investments in the *strategic* level of IS represent are made to gain competitive advantage or to increase market share or sales. Here, the IS provides the company with a new way of doing business or a significant improvement to the way that business is done (Weill & Broadbent, 1998).

Investments in IS can be done with one of the four objectives in mind, or to fit multiple objectives (Weill & Broadbent, 1998). Information systems are spread across the different levels from a cascading point of view, i.e. informational IS are often transactional IS, but a transactional IS is not necessarily an informational IS.

3.2.3 Management and governance of IS

As IS concerns most of the business processes in modern organizations, there are a lot of activities related to the different levels of IS. Applications need to be developed, infrastructure to be expanded, and tasks are being in- or outsourced – all while IT

needs to comply with regulations specific for industries, countries and internally across the business. These activities need to be in alignment with the corporate strategy to deliver superior performance (Reynolds et al., 2010). This happens through formalization of the decision structure regarding IS in organizations, and through compliance with frameworks that lives up to internal requirements and external regulations. These frameworks, that include COBIT (ITGI, 2003) and ITIL (itSMF, 2007), describe how an IT organization should be structured, based on best practices and characteristics of the company. Weill and Ross' influential work on IT Governance (2004) describes the how companies can align business strategy and IS strategy by formalizing the IS decision structure through a set of boards with involvement from corporate functions, SBU's and IT. IT Governance can be seen as an essential part of the governance of a company (Reynolds et al., 2010) and is determining for efficiency of an IT organization.

3.2.4 Integration of IS

The integration of information systems is increasingly becoming a complex task. In earlier days, organizations implemented information systems to support more manual business processes. The IS were not successors of other systems, thus the IS landscape was in most cases relatively simple (Bygstad et al., 2008). Bygstad et al. (2008) points out that the business environment has become more turbulent, while the technical environment has become more complex. Turbulence in the business environment requires not only integrated business processes, but also agile and flexible processes ready for changes in the business.

Integration can be seen as "a process that leads up to an aligned state" (Henningsson, 2008, p.47). Thereby, integration of information systems, align the IS portfolio to optimize the organization. IS integration in itself, does not represent value to a company. The benefits of homogeneous and streamlined IS' are many, and come in the form of synergies that potentially can be derived from integrated IS. These include increased productivity, flexibility, cost savings related to standardization, agility to respond to more quickly to market changes, and benefits based on economies of scale (Henningsson, 2008). This is the case when companies reduce its amount of legacy applications by integrating business processes and functionality into enterprise systems, such as Enterprise Resource Planning Systems (ERP). It is also the case when different IS are integrated through Enterprise Application Integration (EAI) (Mosawi et al., 2006). The act of integrating functionality is referred to as enterprise integration (Lee et al., 2003). Integration also occurs when a company consolidates different IS into one, for instance streamlining a diversified infrastructure, or consolidating a set of HR applications into one. The above views of integration are referred to as internal integration of IS, due to the integration across, but internally in the organization (Henningsson, 2008). External integration describes integration between otherwise independent organizations. Supply Chain integration is an example of external integration that is being widely adopted by corporations (see, for example, Lazzarini et al., 2001). This thesis focuses on internal integration of information systems, and thus uses the term *integration* to refer specifically to this act.

3.3 The resource-based view of organizations

Companies are composed by resources, which they utilize from in their ongoing pursuit of fulfilling their given purpose (Barney, 1991; Amit & Schoemaker, 1993). In line with this, when one company acquirers another, what it purchases, is a bundle of resources (Wernerfelt, 1984). This view on the organization explains a company's performance based on what resources are available to it, and what capabilities it has to optimally utilize from these resources (Amit & Schoemaker, 1993; Prahalad & Hamel, 1990). In an M&A context, this includes how well the combination of two resource bundles is performed, or the absorption of one bundle into another is accomplished. The resource-based view of organizations will be used as a base in this thesis to describe the resources and capabilities that are combined in M&A situations, and what resources and capabilities are used to combine them. Hence, this section introduces the basic concepts behind the resource-based view.

3.3.1 Resource-based view as a means to achieve competitive advantage

With superior resources and capabilities, a company can achieve a competitive advantage (Wade & Hulland, 2004). If these superior resources are heterogeneous, limited and imperfectly mobile, the company will be in a potential position to turn this into a sustained competitive advantage, where the company will be able to make economic rents, i.e. superior profits (Peteraf, 1993; Grant, 1991). The resource-based view, where the resources of the firm are directly linked to corporate strategy, focuses on the internal perspective of the organization, and thus takes an inside-out approach (Henry, 2008). This approach to the competitiveness of a company is in significant contrast to the widely adopted positioning school, where the external environment plays the leading role for the company's performance (see, for example, Porter, 1980; 1985), which therefore is referred to as outside-in approach. Amit and Schoemaker (1993) combines the two perspectives, noting that companies need to pay attention to both in their strategy formulation process.

The view on resources and the application of these have been applied to other fields than the field of strategic management. The inside-out approach offers companies to focus on what resources and capabilities they have in a lot of different, more specific fields than the one of overall corporate strategy, and thus the resource-based view is cascading down through the organization and expanding to other areas of research. Thereby the resource-based view has been applied in fields such as Human Resource Management, Economics, Finance, Entrepreneurship, Marketing, International Business (Barney et al., 2001) and Information Systems (Wade & Hulland, 2004).

3.3.2 Getting the terms right

While researchers are in general agreement of the overall ideas and application of the resource-based view, the concepts and terms are not in complete alignment throughout the research literature (Henry, 2008). Wade and Hulland (2004) for example use the terms assets and capabilities in their literature review to sum up the main concepts, the influential work of Prahalad and Hamel (1990) introduces the concept of core competences, and Wernerfelt (1984; 1989) uses the term resources to

cover the entire topic. Though, forward in this thesis, there will be distinguished between *resources* and *capabilities* (Peteraf, 1993; Grant, 1991), where a subset of key resources and capabilities are categorized as *strategic assets* (Amit & Schoemaker, 1993). Next, these key terms are defined.

3.3.3 Resources

Resources are defined as stocks of available factors that are owned or controlled by the company (Amit & Schoemaker, 1993), which act as inputs, enabling the organization to carry out its activities (Henry, 2008). These include stocks of knowledge, financial assets, and human capital (Capron et al., 1998) and they can be classified as tangible resources, intangible resources (Grant, 1991) or human resources (Grant, 2005).

> *Tangible resources* include physical assets that are accessible to the company. Henry (2008) defines these as physical-, financial-, and human resources. Physical resources cover a company's plants, equipment, locations, access to raw materials and the physical technology it uses (Barney, 1991). Financial resources include a company's cash balances, debt, credit and its financial gearing, while tangible human resources consist of the workforce and their productivity on given measures (Henry, 2008).
>
> *Intangible resources* are far more difficult to identify, and thus can represent a great strategic importance, and thus value to the company (Grant, 1991). Intangible resources include factors such as R&D expertise, marketing skills (Capron et al., 1998), and other tacit knowledge built up in the organization. Furthermore, intellectual resources such as patents, brand names, copyrights and goodwill are classified as intangible resources of the form (Henry, 2008).
>
> *Human resources* consist of the expertise and effort offered by its employees (Grant, 2005). Employees are affiliated with the company through their contract, but the company does not own employees. Furthermore it is acknowledged that their contribution, knowledge and know-how can represent a great advantage to the company, but these are not easily assessed nor valuated (Henry, 2008). Human resources are considered as a subcategory of tangible resources in a great part of, especially the early literature on the resource-based view (See, for example, Grant, 1991; Amit & Schoemaker, 1993).

Resources themselves are hardly very productive or value creating to the company. They need to be utilized from through cooperation and coordination of teams of resources (Grant, 1991). This relates the capabilities of a company.

3.3.4 Capabilities

The capacity to deploy resources defines a company's capabilities, which are often developed within different functional areas and combines different types of tangible, intangible and human resources at a corporate level (Amit & Schoemaker, 1993). Thereby, there is an interdependent relationship between a company's resources and

its abilities to deploy them. In short, Grant (2005, p.130) outlines the difference between resources and capabilities:

> *Resources are the productive assets owned by the firm; capabilities are what the firm can do.*

Prahalad and Hamel (1990) use the term *competencies* to describe capabilities as the specific collective learning in organizations, related to the coordination of diverse production skills and integration of multiple resources. Grant (1991) describes the most important capabilities of the organization as the integration of different capabilities on a corporate level; Prahalad and Hamel (1990) use the term *core competencies* to label these. These broadly defined capabilities are formed from the integration of specialized capabilities, and can be viewed in a hierarchical structure (Grant, 2005). See Appendix H.

3.3.5 Strategic assets

Not all of a company's resources are strategically relevant to it (Barney, 1991), but as resources are heterogeneous and to some extend limited, those resources that are of strategic relevance become a competitive factor that defines the success of a company (Peteraf, 1993). Amit and Schoemaker (1993, p.36) thus define strategic assets as "the set of difficult to trade and imitate, scarce, appropriable and specialized Resources and Capabilities that bestow the firm's competitive advantage". Hereby, one critical task for organizations is to identify it's current strategic assets, and the desired strategic assets that will enable strategy formulation and execution on different levels in the organization. Examples of strategic assets are: Technological capability, fast product development cycles, brand management, and superior access to distribution channels (Amit & Schoemaker, 1993). Applied in an M&A context, a focused target selection, extensive due diligence, and efficient post-acquisition integration, are examples of potential strategic assets in organizations.

3.3.6 Heterogeneity and mobility

Companies' resources and capabilities are normally considered to be different across firms (Peteraf, 1993). Some resources are homogeneous and perfectly mobile, and thus can be traded openly, but in reality there is most often at least a degree of heterogeneity and immobility attached to resources and capabilities, which also makes the base for different performances across companies (Barney, 1991; Wernerfelt, 1984). A resource is homogeneous if all the competitors in an industry have access to it. This might for be the case for online travel agencies that consider access to Amadeus[5] a significant resource as part of their business model, since they will not be able to present potential customers with flight times, prices, or availability without it. Given that all travel agents have access to the engine, it can be considered a homogeneous resource. Resource heterogeneity arises whenever different companies have different resources or have different levels of access to common resources. This is the case when a first mover gets access to, or builds up distribution channels in an

[5] Amadeus is a global travel distribution system, where travel transactions are made between airlines, hotels, car rental companies, cruise lines, travel agencies, etc.

industry. Resource homogeneity is based on the notion that there are limited resources available, and the scarcity hence facilitates the competitiveness of companies (Peteraf, 1993). Furthermore, resources and capabilities are to some extent immobile. Some resources are perfectly immobile, and therefore cannot be traded, as it is the case with resources or capabilities that have no use outside the company. Other resources are more valuable to the company than to others due to specialization to firm-specific needs. These resources are considered imperfectly mobile (Peteraf, 1993). Having the right resources and capabilities makes a company more competitive. This can only be the case because resources and capabilities are not imitable due to uncertainty from competitors to what resources are required, how to deploy them, and what caused the competitive situation to become as it is. This is referred to as causal ambiguity (See, for example, Henry, 2008).
In formulating strategies or doing business, companies can exploit their existing resources (Wernerfelt, 1984), or make strategies that requires development of new resources to fill the emerging resource gap that allows the business to work towards increasing its competitive advantage (Grant, 1991). This can for example be the case in corporate acquisitions (see Henningsson, 2011b).

3.4 Integrated view

The past sections have introduced the main concepts on which this thesis builds. *Mergers and acquisitions*, a *resource-based approach* and *information systems* have all been introduced and the concepts have been defined. In the next section, these concepts are combined to make the base of the research of this study, which in the next chapter will lead to a conceptual view on the M&A integration of IS as well as a theoretical framework.

3.4.1 RBV in M&A

On a corporate level, mergers and acquisitions can be seen as a purchase of a bundle of resources that are otherwise not marketable due to heterogeneity, immobility and limitedness (Wernerfelt, 1984). By acquiring another company, it is possible to get access to both tangible, intangible and human resources of a firm, as well as its capabilities to deploy them. Resources can be redeployed between an acquirer and a target to optimize the new combined business (Capron et al., 1998). Wernerfelt (1984) outlines two resource-based acquisition strategies:

> Related *supplementary* – the company purchases more resources of the kind that it already has.
>
> Related *complementary* – the company acquirers resources that will combine effectively with the resources that the company already has.

These two strategies can be interpreted as being very closely aligned with the horizontal and vertical integration strategies outlined above. However, this is not always the case, as resources and capabilities are firm-specific. A company does not have to expand its business focus to make use of a related complementary acquisitions strategy, as it is the case with vertical acquisitions. Complementary acquisitions can

also be used as a means to better utilize from the resources that are already present in the organization (Grant, 1991).

The success of mergers and acquisitions highly depend on the post-acquisition integration (Christensen et al., 2011), which again depends on the due diligence efforts and the integration planning. As resources are of no value unless they are being put to use, combined with other resources, acquirers face a critical task in the integration process where resources are being combined in new ways (Grant, 2005). Depending on the integration strategy of the acquirer, this process covers a vast amount of tasks from streamlining of business processes, alignment of financial data, consolidation of accounts, selection of IS, migration of data, handling of resistance to change, etc. In this context, the company uses resources and capabilities to perform the integration. These resources and capabilities are often considered to be located within the combined organization, but in most cases the integration teams consist partly of external consultants (Meckl, 2003), which then act as resources or capabilities depending on their role of the integration project. Thus consultants can be regarded as resources and capabilities to the firm, despite the fact that they are not resources that are owned by the firm (Wernerfelt, 1984). The literature on consultants in a resource-based view, as well as consultants in M&A is very limited. But based on the resource transfers in organizations in M&A situations, it is suggested that companies to some extent are able to utilize from consultants experience in the post-acquisition integration process. Thereby, very generally, consultants can be used either as supplementary resources, as complimentary resources or as capabilities that deploy the resources in the combined organization and manage the resources used for the integration process.

3.4.2 Information Systems in a Resource-Based View

As shown previously in this chapter, the resource-based view of companies initially explored how resources would enable a company in achieving a sustainable competitive advantage (e.g. (Barney, 1991; Peteraf, 1993). Here, companies consist of resources. As subset of these resources, will allow the company to gain a competitive advantage, and a subset of those resources again, will allow it to gain a sustainable competitive advantage (Wernerfelt, 1989; Grant, 2005). Information systems ability to directly influence to the sustainable competitive advantage of a company has been questioned, compared to other resources such as brand equity or financial assets. Instead IS contributes to a complex chain of resources and capabilities that "may lead to sustained performance" (Wade & Hulland, 2004, p.109), and whereby IS might be necessary resources to achieve sustainable competitive advantage, but not sufficient (Clemons & Row, 1991). Therefore, there is a strong interdependence between IS resources and other types of resources in the company in gaining competitive advantage.

Clemens and Row (1991) mention equipment, software, services and personnel as resources in the IT organization and states that these may be a necessity that represents a cost to the firm, but that they rarely contribute to sustained competitive advantage. But IS resources and capabilities are not limited to technical IT systems from a functionality or operational perspective. They are composed of resources and capabilities on different levels of the organization. Bharadwaj (2000) applies the

resource-based view on an IS perspective, identifying tangible, intangible and human resources, which he refers to as IT Infrastructure, IT-Enabled Intangibles and Human IT Resources, respectively. Furthermore, he identifies IT Capabilities and links this to firm performance.

> The *IT infrastructure* resources are tangible and can be seen as all the physical IS assets of a company. This includes the entire IS portfolio, spanning over infrastructure level, transactional level, informational level and strategic level (Weill et al., 1994). Thereby it includes all hardware, software and data. Physical assets, based on the homogeneous and tangible character, can only add to sustainable competitive advantage if they perform better than equivalent resources of competitors (Bharadwaj, 2000; Barney, 1991). Due to the complex composition of IS resources in a corporate context, as well as causal ambiguity, IS resources cannot be considered as replicable and IT infrastructure resources can thus be considered able to assist in creating value to the company.
>
> *IT-Enabled intangibles* cover intangible organizational resources that are enabled through the IS of the company. These include product quality, customer service, market orientation, knowledge assets, organizational memory, synergy etc. (Bharadwaj, 2000). In other words, these resources enable the organization coordinate and deploy its existing resources, or build or acquire new resources based on identified gaps.
>
> *Human IT Resources* include training, experience and relationships of and insights on IS level of the employees of the company. These can be categorized as *technical*, and *managerial* IS skills. Technical skills cover programming, systems analysis and design, and competencies in emerging technologies, while managerial IS skills cover effective management of IS functions, user-community coordination and integration, skills within project management as well as leadership skills (Bharadwaj, 2000).

The combination of the abovementioned three groups of resources, represent the IT capabilities of the company. These reflect how well the resources are being combined and put to use in accordance with the already defined capabilities in the RBV. Wade and Hulland (2004) consolidate the IS resources identified by researchers, from where they present a typology of IS capabilities as well as categories of IS resources. Selected resources and capabilities include[6];

- Integrate IT and business processes
- Business and IT alignment
- IS assimilation
- IS and strategy integration
- IS management skills
- Capacity to manage change
- Management of standards and architecture
- Infrastructure

[6] See Appendix I for a full list of resources identified by Wade and Hulland (2004).

- Practices
- Technical IT skills
- Cost effective operations and support
- Getting IT to function

All of these resources are essential in post-acquisition IS integration, and companies need access to these resources to be able to perform the integration. As already mentioned, resources can be viewed on many levels, and human IS resources (Bharadwaj, 2000) are required to utilize from the abovementioned resources. These human IS resources develop the strategies, plan the business and IT alignment, perform the integration, handles the change management programs, based on other resources present in the company. Hence, the technical and management skills can be seen as necessary resources in utilizing from other IS resources, and consequently as potential constraints in an IS integration process.

To deal with capacity or capability constraints or limited resources of IS management skills and technical IS skills, companies use external resources to varying extend. The purpose of this thesis is to explore the connections of when companies use consultants in the post-acquisition IS integration, and for what, i.e. what kind of resources they use that they do not possess internal in the organization, or do not have sufficient of, based on the attributes of the M&A act.

3.4.3 Integration of IS in mergers and acquisitions

The literature on integration of IS in mergers and acquisitions is limited, despite the fact that this task has been proven particularly complex and difficult (Mehta & Hirschheim, 2007; Capgemini, 2007), often with strong external influence by laws and regulations (Freitag et al., 2010). In later years, though, there has been an increase in the intensity of research within the field, which is called for due to IT's large impact on expected synergies in M&A. McKinsey & Co. in this context estimates that 50 to 60 percent of the initiatives intended to capture synergies in the post-merger phase are strongly related to IT (Sarrazin & West, 2011).

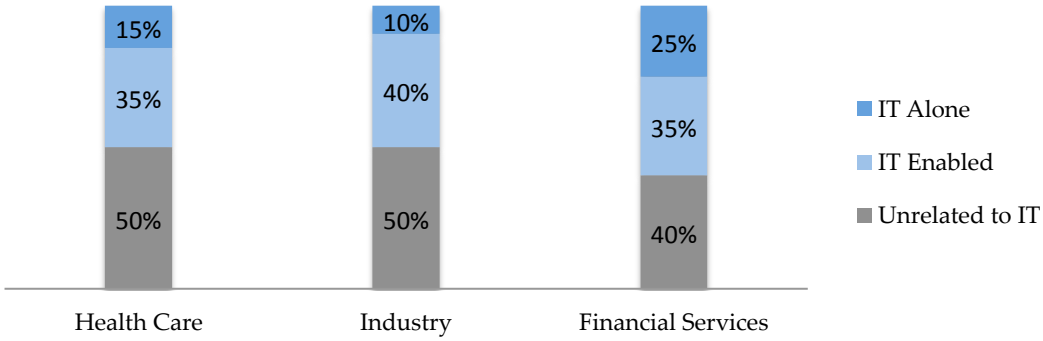

Figure 3-3 - Synergy distribution by industry - based on Sarazzin and West (2011)

3.4.4 IS integration strategies

The extant literature on IS in relation to M&A has to a large extent been concerned with IS integration strategies. Giacomazzi et al. (1997) bases different integration strategies on the final configuration of applications and the final configuration of the

IS architecture, leading to a matrix of integration strategies where the level of standardization on the two factors in the final setup determines the integration strategy that is pursued for the post-acquisition integration act. Johnston and Yetton (1996) discuss *best of breed* and *absorption* integration models as two main IS integration strategies for mergers and acquisitions. Furthermore they link these two IS integration strategies to corporate merger strategies and the pre-merger configuration of the two entities, concluding that absorption strategies are best suited for rationalization or cost-reduction motives of the merger, best of breed IS integration fit value-adding or synergy motives, while a co-existence strategy, where the IT configurations remain untouched, fits the mergers where organizational ties are not bound as a result of the merger (Johnston & Yetton, 1996). As part of the IS integration strategy, Wirz and Lusti (2004) presents the findings of an empirical survey of large Swiss and German Banks, identifying that four different alternatives for deciding the future systems of the combined organization exist. The system selection strategies are referred to as *take-over*, *best of a breed*, *disconnection*, and *new system* (Wirz & Lusti, 2004). The integration strategy can also be determined by the IT vision for the combined company, where the balance between overspending on IT and keeping IT sufficient to support the business processes of the company is the key focus. In this context the integration strategy is defined by the level of integration that is envisioned for the future company depending on the type of company (Holm-Larsen, 2005; Accenture, 2002). Finally, Henningsson (2011) presents three different IS integration strategies for acquisitions:

> *IS Assimilation* occurs when the targets IS are replaced by the existing IS of the acquirer.
>
> *IS Co-existence* is found when part of the targets IS are retained and some of the acquirers IS are rolled out in the target. In full co-existence all of the targets IS are retained.
>
> *IS Renewal* integration strategies are pursued when neither the acquirer nor the targets IS supports the business of the combined unit, and new IS functionality needs to be developed.

These three integration strategies will be used further in this thesis. A fourth IS integration strategy related to the corporate Add-On integration strategy is often mentioned in the literature (Accenture, 2002; Holm-Larsen, 2005; Wirz & Lusti, 2004), but as no business process integration, or IS integration occurs on a business unit level, this can hardly be considered an IS integration strategy. Giacomazzi et al. (1997) mentions this as a *No Integration* approach, where all the linkages that occurs is "transmission of data necessary for corporate management" (p.292). This approach can be seen similar to the full co-existence integration strategy mentioned above, in cases where none of the acquirers IS are rolled out in the target.

3.4.5 Impact of experience

As it is the case on a corporate level, experience is considered a relevant factor for the outcome on IS integration. Zollo and Singh (2004) find that companies seem to be able to develop capabilities based on their post-acquisition integration experience. While

experience logically might be considered to have a positive impact on post-acquisition IS integration, Henningsson (2011) suggests that this might not always be the case, introducing three learning mechanisms for acquirers; *routine refinement*, *superstitious learning* and *expertise building*. Routine refinement relates to integration tasks that can be rather standardized, and thus can be learned and applied as a routine. As acquisitions are always different (Holm-Larsen, 2005), companies expose themselves to the risk of believing that their integration experience can be applied in future acquisition cases, where the capabilities needed are in fact different, thus leading superstitious learning. Finally companies can build expertise by reflecting on past integration experiences and understanding the mechanisms that leads to the outcome of the integration (Henningsson, 2011b).

3.4.6 Decision making and alignment

In cases where the IS of the two merging entities are similar, the post-merger integration will be less complex, than if the IT configurations are different (Johnston & Yetton, 1996). In this connection, a set of initial conditions can be outlined that defined the ideal type acquisition from an IS integration point-of-view (Henningsson & Yetton, 2011). The initial conditions relate to the continuity of the corporate strategy, to the alignment of the IS and IT strategy, to the type of the acquisition and to the extent to which the infrastructure and application portfolio can be integrated into the acquirers. Henningsson and Yetton (2011) finds that lack of compliance with the initial conditions will lead to a need to build business or IT capabilities in the organization, and thus the company will experience the integration as "challenging and complex" (p.5). Mehta and Hirschheim (2007) finds that the business and IT alignment is a minor concern in the early phases of the integration. Furthermore they find that the lacking involvement of IT leaders, such as the CIO, in the pre-merger negotiations or due diligence phase, is the result of the top executives not risking the CIO's to potentially break the non-disclosure agreements during the negotiations, and furthermore as IT is not a deal-breaker in the oil and gas industry which was the focus of their research (Mehta & Hirschheim, 2007). Other researchers have found that this is the case for other industries as well, and that IT due diligence often happens to a very limited extent, despite that early involvement of IT in the integration planning has positive financial impact on the acquisition (McKiernan & Merali, 1995; Giacomazzi et al., 1997; Henningsson, 2008).

3.4.7 The integration and migration process

The integration strategy and process depends on the IS landscape of the acquirer, and often also of the target. Johnston and Yetton (1996, p.201) examines companies IS landscapes, or organizational IT characteristics, including IT strategy, IT structure, IT systems, IT management processes and IT skills and uses these as a determinant. Henningsson (2008) suggests three levels of IS integration in M&A; business level, application level and technology level. Freitag et al. (2010) outline two major migration tasks as part of the integration in what they refer to as the application migration process and the data migration processes. Here they find that the application migration is often still ongoing years after day 1 and after the application selection was performed. In this context, they find that the integration of the

application landscape represents both a technical and an organizational challenge. The integration of applications leads migration of a variety of data, which can be considered primary, secondary or archive data. Primary data includes customer and contract data. Secondary data is aggregated from other systems, for example through business intelligence applications. And archive data is often kept for legal purposes. In addition to this, Freitag et al. (2010) finds that companies often migrate transaction and master data as part of the data migration process.

3.5 Consultants

The role of financial advisors and transactional advisors associated with investment banks has been the center of a lot of attention in the M&A literature (Johnston & Yetton, 1996, see for example Allen et al., 2004) primarily focusing on the impact they have on the price tag of the target. Despite the, of each other independent, acknowledgements that most synergies are not realized until the integration of the organizations takes place (Saint-Onge & Chatzkel, 2009; Christensen et al., 2011), and that most companies use consultants in the post-merger integration phase (Meckl, 2003), the role and involvement of consultants in the post-merger integration process has received only very limited treatment in the extent literature. The involvement of consultants has sporadically been addressed from an information systems perspective, and from an M&A perspective, but the literature tends to acknowledge the role and presence of consultants rather than exploring and analyzing it.

In an M&A context, LaJoux (1997) recognizes the opportunity in utilizing from consultants in the post-merger integration, stating that "Managers should consider using services of outsiders to compensate for their deficiencies" (p.50), further pointing to experience, expertise and objectivity as benefits companies can gain from using external resources in planning the M&A integration. From a resource-based view, companies should thereby utilize from external resources to supplement their own strategic human assets (Amit & Schoemaker, 1993), which is in line with Wernerfelts (1984) statement that resources does not have to be owned by the company, for it to be able to utilize from them. Meckl (2003) describes how M&A integration projects can ideally be structured from a project organization and project management perspective, emphasizing the role of consultants in the high-level planning during the preparatory phase. Furthermore, he presents the integration phase as a matrix of task forces with overlapping activities, where external consultants are likely to join specialists from both sides (Meckl, 2003).

From an information systems perspective, consultants are an equally infrequent topic. Though, in the information systems literature, consultants seems to gain attention in the remarkably large projects involving IT, that companies carry out. ERP implementation projects can be argued to have similarities to M&A integration projects due to ERP systems heavy influence on business processes throughout the entire organization and due to ERP systems rarely being greenfield projects (Bygstad et al., 2008), where the system is being implemented without replacing something else.

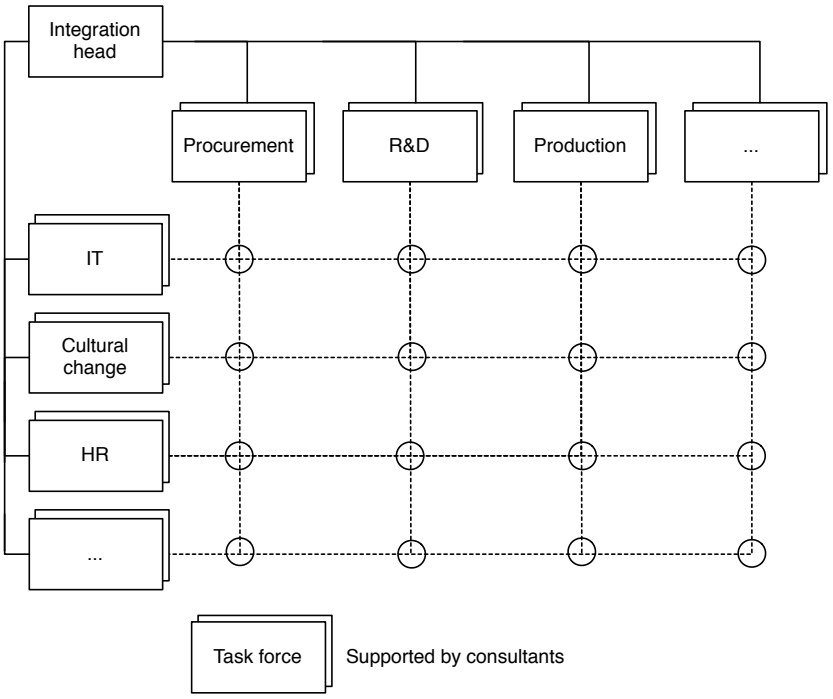

Figure 3-4 - Task forces in the post-merger integration. Adapted from Meckl (2003).

In an ERP context, consultants are mentioned as a natural element to include in the implementation team (Finney & Corbett, 2007) that most companies rely on "for significant help in developing and implementing these systems" (Ko et al., 2005). On an SME level, management involvement and high-quality external IS expertise is seen as the two key factors of information systems effectiveness of ERP implementation, with consultants being the most critical (Thong et al., 1994). This is supported on a large enterprise scale by a study on ERP implementation by Ifinedo (2008), who identifies and finds support for *top management support*, *business vision*, and *external expertise* as the determinants of ERP systems success, again with the effect of external expertise being more important than the other factors (Ifinedo, 2008, p.561). Furthermore, studies have found a correlation between the level of external expertise and the success level of ERP adoption (Wang & Chen, 2006; Thong et al., 1996). Finally, the quality of consultants is discussed in ERP projects with regards to how well consultants live up to the expectations they initially create in the adopting organization (see, for example, Westrup & Knight, 2000; Wang & Chen, 2006). Another relevant topic under IS where consultants are mentioned, is in strategic outsourcing of business functions. Quélin and Duhamel (2003) find that one of the key motives for clients to outsource a part of their business, is the opportunity to use external expertise that will help them develop or improve their business.

3.5.1 Consultants in post-acquisition integration of information systems

Together, two views constitute the existing, very limited knowledge body on the use of consultants in the post-acquisition integration of information systems; the academic view and the consulting view. The consulting view represents publications from the consulting companies offering their service in this domain. Often these publications focuses on the issues of M&A integration, the challenges that might occur they can be

mitigated by the right means (see, for example, Accenture, 2008). The publications are based on the experience with post-merger integration throughout the consulting companies and offers interesting insights due to the large amount of projects that the knowledge of the consulting companies are based on. These publications, though, offers little, if any, insight in the consultants actual roles or tasks during the integration process and the tendency is that the role of experience and consultants are mentioned as an enabler of success in the process (see Accenture, 2002; Capgemini, 2007), without any empirical grounding. Viewing consulting companies' publications as substantial part of the knowledge base on the topic is of course related with difficulties, as they are naturally biased. The contribution of the consulting companies views becomes valuable when there is balance in the knowledge base between the theoretical insight of researchers and the experience of consulting companies (cf. (Holm-Larsen, 2005), and as the knowledge on the topic expands. At this point, it has only been possible to identify three academic articles, all unpublished, explicitly dealing with consultants in the post-acquisition integration of information systems, though not as the main focus of the research. Wirz and Lusti (2004) explore different integration strategies for mergers and acquisitions in five large corporations. In this connection they find that all five companies use consultants in the M&A integration, and furthermore they acknowledge that consultants and their competencies are not homogeneous. In line with this, a recent study by Freitag et al. (2010) investigating IT transformation in mergers and acquisitions, finds that consultants are indeed used for different purposes. Their empirical findings suggests that, for the most part consultants are used to perform "operational integration work, like preparing IT platforms or migrating data" (p.12), but that consultants are also used to bring integration experience and know-how, for example in terms of meeting schemes, data migration methods or testing models. Finally, Papathanassis (2003) focuses on the different elements of post-merger integration of ICT, and mentions consultants as a means to cope with limited resources and capabilities in the integration. She also points attention towards the risks associated with using consultants in this process, pointing to heavy use of consultants potentially leading to inefficiencies in the company's own skills.

The literature on consultants within the domain of IS integration in mergers and acquisitions provides no insight that contributes directly in answering the research question of this thesis. The existing knowledge body is not concerned with what role consultants are used for in relation to the M&A integration act, though Wirz and Lusti (2004) touch upon the different tasks that consultants perform. With this area being considered a black hole in the research literature, the next section will build a theoretical framework that will be used in exploring the area further, thus contributing to the knowledge body.

Chapter 4

Putting the pieces together

As identified in previous chapter, the knowledge body of the use of consultants for integration of information systems following a merger or acquisition is practically non-existing. The M&A literature sporadically touches upon the use of consultants in the integration phases, but the focus is never on the role nor the involvement of external resources. The same is the case in the information systems literature, where consultants are occasionally mentioned in relation to implementation or planning tasks. As the notion of external resources and capabilities are rare and scattered across the knowledge body of these two research areas, the focus on consultants has not intersected in the information systems and the M&A domain. This study, though, will point its focus exactly to this point of when and how consultants are used in relation to information systems integration in M&A process.

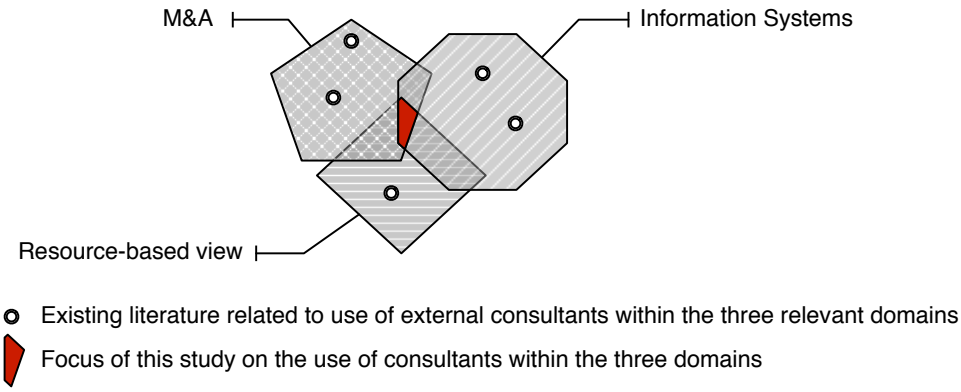

Figure 4-1 - The focus on consultants in other studies within the three domains, and in this study. Conceptual presentation.

This study will focus on companies' use of external staff in the cross-section that occurs between information systems and M&A. The resource-based view is used to make a common ground for what consultants are and what position they take in relation to both the company in the M&A integration and in an information systems perspective. Furthermore, the resource-based view provides an understanding of how companies can utilize from resources and capabilities in pursuing their goals, thereby providing an explanation for how consultants are able to assist the company in the first place.

4.1 Theoretical overview

The theoretical bodies presented throughout the previous chapter gives insight in the domain that is the focal point of this thesis and they make the foundation of a common understanding of the topic, which is used to further guide this study. An

overview of the key topics of the relevant and discussed theories is presented below, along with researchers who have engaged in the respective fields.

Topic	Researchers
Mergers and Acquisitions	
Target relative size - Merger - Acquisition	Bannert-Thurner (2005); LaJoux (1997), Mehta and Hirschheim (2007), Henningsson (2008), Giacomazzi et al. (1997), Hubbard (1999)
Type - Vertical - Horizontal - Conglomerate	LaJoux (1997); Brealey, Myers and Allen (2006)
Motive - Cost-driven synergies - Revenue-driven synergies	Zollo and Meier (2008); Haleblian et al. (2009)
Phases - Prepatory - Transaction - Integration	Meckl (2003); Calipha (2010); Holm-Larsen (2005)
Integration strategy - Add-On - Absorption - Best of Both - Breakthrough	Saint-Onge and Chatzkel (2009)
Experience - Serial acquirer - Single acquirer	Barkema and Schijven (2008); Kengelbach et al. (2011)
Integration elements - Integration team - Management integration team	DePamphilis (2010)
Information Systems	
Levels of IS - Infrastructure - Transactional - Informational - Strategic	Weill and Broadbent (1998); Weill. Broadbent and Clair (1994)
Integration - Internal integration - External integration	Mosawi, Zhao and Macaulay (2006); Henningsson (2008); Lazzarini, Chaddad and Cook (2001)

IS Management and Governance - Corporate strategy alignment - IT Governance	Reynolds, Thorogood and Yetton (2010); Weill and Ross (2004)
Resource-based view	
Theoretical grounding - Sustained competitive advantage - Resources - Capabilities - Strategic assets	Peteraf (1993); Wernerfelt (1984); Barney (1991); Amit & Schoemaker (1993); Prahalad and Hamel (1990)
Resource types - Tangible resources - Intangible resources - Human resources	Capron, Dussauge and Mitchell (1998), Grant (1991), Grant (2005), Henry (2008)
Resource and capability attributes - Heterogeneity - Immobility	Peteraf (1993); Barney (1991)
Resource strategy - Exploration - Exploitation - Supplementary - Complementary	Henningsson (2011); Wernerfelt (1984)
Integrated view	
IS resource and capability classification - Inside-out - Spanning - Outside-in	Wade and Hulland (2004)
IS resource groups - IT infrastructure - IT-enabled intangibles - Human IT resources	Bharadwaj (2000); Clemons and Row (1991)
IS integration strategy - Assimilation - Co-existence - Renewal	Giacomazzi (1997); Johnston and Yetton (1996); Wirz and Lusti (2004); Henningsson and Yetton (2011)
M&A experience - Routine refinement - Superstitious learning - Expertise building	Barkema and Schijven (2008); Henningsson (2011b); Zollo and Meier (2008); Zollo (2004)
Corporate and IT implications - Continued - Path-Breaking	Henningsson (2011)

Ideal type post-acquisition IS integration - Initial conditions	Johnston and Yetton (1996); Henningsson (2011)
Integration and migration - IS landscape - Application migration - Data migration	Freitag, Matthes and Schulz (2010)
Consultants	
Motives - Competence gap - Project success - Planning or strategy assistance - Objectivity	LaJoux (1997); Meckl (2003); Wang & Chen (2006)
Consultant tasks - Routine Work - Controlling - Technical Tasks - Integration of external applications	Freitag, Matthes and Schulz (2010); Wirz and Lusti (2004)

Table 4-1 – Overview of the theoretical foundation of this study

The academic foundation presented above leads to a conceptual view of the PMI of IS, as well as a theoretical framework that will be used to explore the use of consultants in post-acquisition integration of information systems empirically.

4.2 Conceptual view of the post-merger integration

According to the M&A literature, mergers or acquisitions leads companies to become one entity (Bannert-Thurner, 2005), which can be perceived as a combination of two resource-bundles into one (Wernerfelt, 1984). The actual combination of resources occurs due to the post-merger integration consisting of a series of integration tasks (LaJoux, 1997), which are performed by an integration team (DePamphilis, 2010). This team consists of internal resources (Zollo & Singh, 2004), but in addition, in most cases also of external consultants (Wirz & Lusti, 2004; Freitag et al., 2010; Accenture, 2002). This leads to the following conceptual view of post-merger integration of IS.

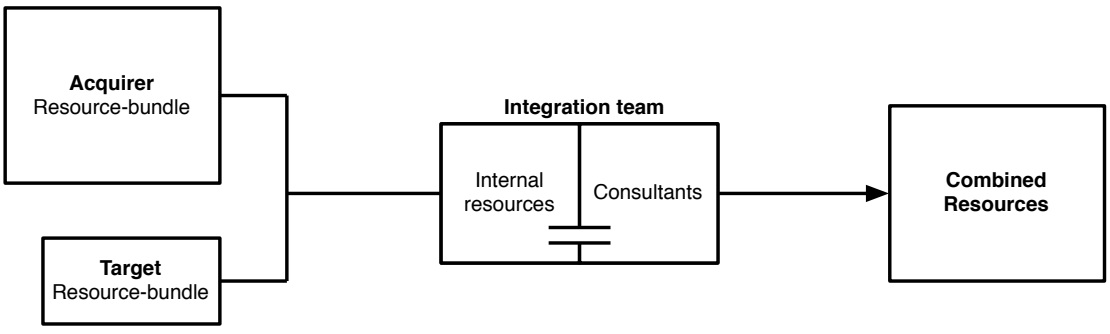

Figure 4-2 - Conceptual view of the post-acquisition integration

When considering the integration process from a resource-based view it is noticeable that the integration team is composed mainly by what Bharadwaj (2000) refers to as human IT resources and capabilities (Wade & Hulland, 2004). Furthermore, these resources and capabilities can be either supplementary or complementary (Wernerfelt, 1984).

4.2.1 Consultants as resources and capabilities

During the integration planning and the integration phase, members of the integration team act as resources when they perform tasks that are predefined and specified according to project plans or detailed task descriptions. In the cases where consultants are used to assess the existing resources, define integration strategies, or develop high-level project plans whereby their tasks are not predefined, they can be regarded as capabilities. As capabilities they deploy, define, and affect the tasks of internal and external resources to the company (Wade & Hulland, 2004).

4.2.2 Supplement and complement use of consultants

Resources and capabilities can be supplementary, and thus add more of the already existing resources and capabilities of the company, or complementary, expanding the scope of resources and capabilities available to the organization (Wernerfelt, 1984). Due to the post-merger integration process being both highly complex and resource demanding, companies might use external consultants either to relieve the IT employees to do other tasks, or to perform tasks that the company does not have abilities to do in-house (Freitag et al., 2010).

4.2.3 Classification of external consultants

Consultants perform different tasks in the IS integration team, as noted by Wirz and Lusti's (2004). As companies are heterogeneous and not two acquisitions are the same, it is relevant to consider the consultants role relative to the company undergoing the acquisition, rather than from the technical tasks performed by the consultants. This perspective allows greater understanding of how companies benefit from using consultants in the post-merger integration. From a resource-based view of corporations, consultants can act as resources or capabilities and as supplement or complement to the company. Thereby the role of consultants in M&A integration of information systems can be classified into the following four categories that will be referred to throughout this thesis:

	Supplement	**Complement**
Resource	Muscle	Craft
Capability	Expertise	Brain

Table 4-2 - External experience matrix

The classification allows companies to use consultants as follows:

> Consultants as ***muscles*** are used to perform tasks that the company has already been doing, but needs extra people to do due to the resource-requirement of the integration. This can for example be operation of existing

platforms while the people normally performing the operation tasks are allocated to other tasks during the post-merger integration (Freitag et al., 2010).

Companies use ***expertise*** when they use consultants for high-level tasks, that they already have staff to do. In companies with an established IT strategy function or an M&A task force, it would be the case when externals are hired for sparring purposes. It is also the case when consultants are hired because of their objectivity.

The work of externals can be considered ***craft*** when it requires know-how that is not present in the IT organization of the acquirer or the target. When consultants for example are hired for specific SAP implementation tasks that are not standard to the corporation, they are used as craft.

When companies hire consultants to be ***brain***, they hire them to help the company develop integration strategies or high-level synergy assessment and integration plans that the company could not have done on its own (LaJoux, 1997).

This classification of consultants can give insight in *how companies use consultants in the post-acquisition integration of information systems*, and can thus be strongly linked to the "how" of the research question. To add the context of "when" and be able to explore this altogether, i.e. study the area of the research question, a theoretical framework is build around this classification together with M&A characteristics related to the discussed literature on information systems as well as mergers and acquisitions.

4.3 Theoretical framework

In any given acquisition, a series of factors affect the PMI act, in which consultants are part of the integration team. These factors thereby affect the roles of the consultants, the extent to which they are being used in relation to the internal workforce, and the proportions of the different types of external experience that is being used in the specific acquisition. The factors considered in this study have all been accounted for throughout the presentation of the relevant literature, listed in Table 4-1 – Overview of the theoretical foundation of this study

The theoretical framework considers the connection between relevant factors and the utilization of consultants. Relevant factors are related to the M&A act, as well to the IS organization in the companies that are to be combined. The purpose of the framework is thereby to explore if each factor, or a specific combination of factors affects a specific utilization of consultants on the IS side in the post-acquisition integration. This could for the example be the case if horizontal mergers, as opposed to horizontal acquisitions, always leads to heavy use of consultants as muscle, but no significant use of the other types. Or it could be the case that both craft and expertise is widely used in cases when the company has only limited human IT resources and pursues a co-existence strategy. The framework is presented below.

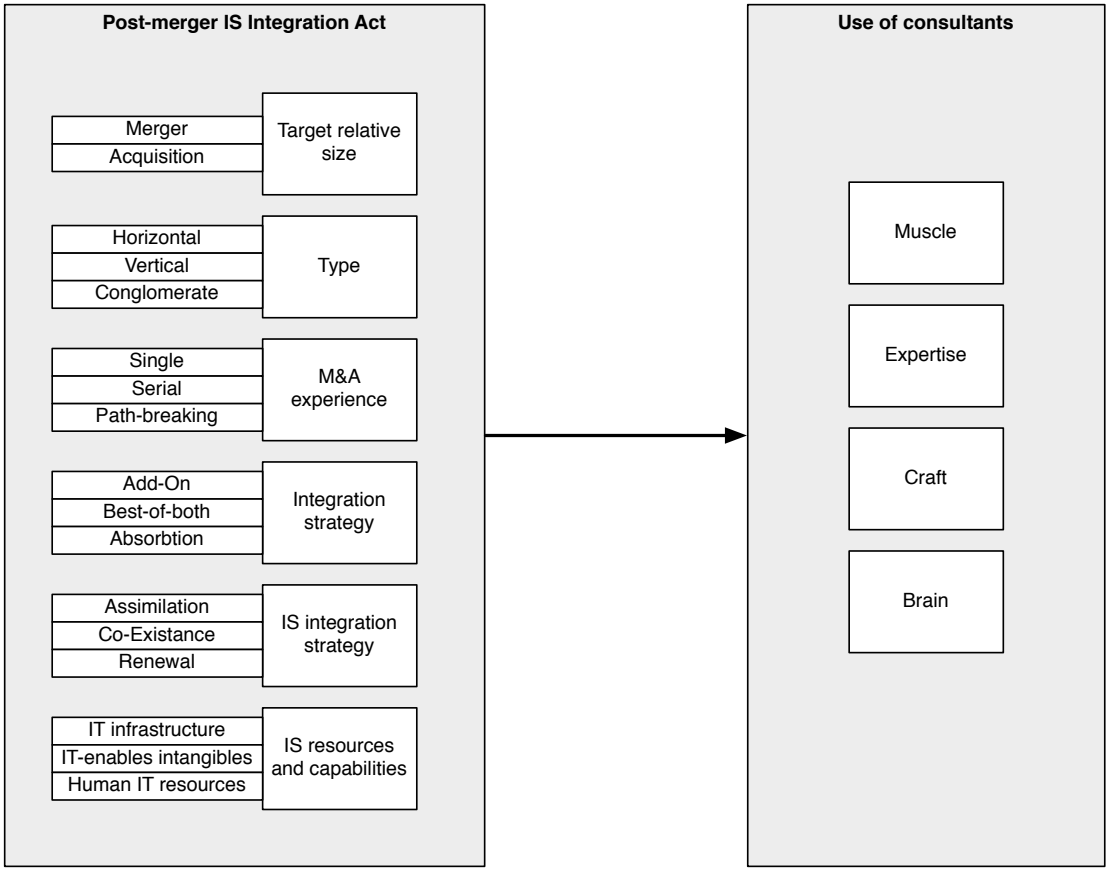

Figure 4-3 - Theoretical framework

The theoretical framework will be used to guide the empirical study of the research question. Accordingly the next chapter presents the findings of the conducted interviews using the framework.

Chapter 5
Four companies and a number of acquisitions

Guided by the research question and the theoretical framework, this chapter explores and analyses companies use of consultants in the post-acquisition integration of information systems. Four large Danish companies with different M&A experience are explored with regard to factors related to their respective acquisitions or mergers, as well as their use of consultants in the succeeding integration of IS. The empirical study is primarily based on interviews with six key informants representing the four companies. The table below presents the companies participating in this study, the functions of the respondents, and a reference code for each interview. All interviews were conducted live at the premises of the respective company.

Reference	Company	Respondent function	Type
A1	Danisco	CIO	Live
B1	Carlsberg	CIO	Live
B2	Carlsberg	IT Asset Management	Live
C1	Grundfos	CIO	Live
C2	Grundfos	IT Manager	Live
D1	Norican Group	Program Manager, DISA merger	Live

Table 5-1 - Reference codes for interviews

An analysis of each of the case companies is performed, outlining the factors related to the IS integration acts the given company has been involved in. Each company is introduced, it's M&A activity accounted for, integration strategies pursued by the company are discussed, and it's IT organization and structure is presented. Furthermore the companies' use of consultants for PMI of IS is presented and discussed. The main findings related to the defined factors are presented for each company, together with a mapping of the companies use of consultants in accordance with the four types presented in the previous chapter. Following the analysis of the four case companies, an aggregate view of the use of consultants for the integration project is presented and two main findings are discussed, from which a modified conceptual model of the post-acquisition integration of information systems is presented.

5.1 Danisco

Danisco is a producer of bio-based food ingredients and industrial enzymes that are being used in a wide range of industries globally. The group had revenue of DKK 13.7B in the last fiscal year (Danisco, 2010), and employs more than 6,800 people located in 80 countries. The company was a publicly traded company until DuPont, the worlds largest chemical manufacturer, acquired it in May 2011[7]. The integration of Danisco into DuPont was not initiated at the time of this study, why the focus here is on the previous acquisitions made by Danisco.

5.1.1 M&A activity

Danisco has performed 15 acquisitions since 2002, of which four have occurred within the past two years, and can thus be considered a serial acquirer. The acquisitions include both horizontal and conglomerate acquisitions. The CIO explains:

> *Sometimes we perform very strategic acquisitions when we have identified a new business area that we want to grow […]. The other type of acquisition [is] when we just need some capacity or special knowledge, then we have acquired smaller companies that either represent special knowledge or presence in a market or something else that makes it fit well into our pattern. Those are tactic acquisitions. [A1;2][8]*

Most targets have been relatively small, accounting for 50-70 people per acquisition. Meanwhile two targets stand out and can be classified as large, path-breaking acquisitions [A1;3]. The California-based biotech producer Genencor was a 1,300 employee company at the time of the acquisition and added a substantial amount to Danisco's top line, and Rhodia, a food additives manufacturer from France, who held almost 900 employees at the time of the acquisition. Before the acquisition of Genencor, the company was co-owned by Danisco and Eastman Chemical Company, but as the company was operated completely independently, the post-acquisition integration scope was the same as if Genencor had been acquired fully from externals [A1;3].

5.1.2 Integration strategy

Regardless of the size and business impact, all targets have been integrated into Danisco following the same high-level integration strategy. The absorption strategy is based on the view that Danisco is a "true global company" [A1;7] whereby business processes are not dependent on geographical location or business area, but are streamlined throughout the business units on a global scale resulting in Danisco being

[7] See more in DuPont (2011)

[8] **References are given to the interviews conducted as part of the study. [A1;2] in this manner, refers to interview A1, section 2. The interview classification is listed in Table 5-1 - Reference codes for interviews**

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one, large entity rather than a conglomerate of smaller entities. The post-acquisition integration on the information systems side follows this approach by pursuing an assimilation strategy for each acquisition. The CIO presents the approach:

> *All business processes must be implemented in the new company as quick as possible. We have a set of defined business processes that the new company will adopt – we don't discuss that [A1;7].*

The same is the case regarding IT infrastructure, where Danisco's infrastructure, including network, PC's, telephones, etc. is rolled out at the targets sites within the first couple of weeks, in the Rhodia case on day one [A1;9]. Consecutively a unified set of IS including email systems, intranet, CRM and knowledge sharing systems are rolled out. Before the end of the first quarter being a part of Danisco, financial data is fed into the corporate data warehouse solution [A1;17] allowing reporting of management information from the business unit. The business processes, change management activities and ERP integration onto the corporate SAP installation is finished within 6-12 months after day 1. In cases where the new business does not fit into the existing SAP platform due to special requirements, the global template is updated and rolled out all across the business [A1;15].

5.1.3 IT organization

Danisco IT has resources and capabilities to develop on and maintain their IT portfolio, which includes infrastructure, SAP, an in-house CRM, a highly customized knowledge sharing platform, management information systems and the suite of email, intranet systems, etc [A1;17]. The corporate IT portfolio is not run exclusively by the 160 people employed in Group IT, as some tasks are outsourced. In this manner CSC hosts the SAP platform and the global network is outsourced to AT&T. Despite having outsourced a substantial part of the operation tasks, Danisco makes sure that there are human IT resources with competencies within the different areas that have been outsourced, so that the they understand the tasks that externals are performing for them [A1;46].

5.1.4 Use of consultants in M&A

In IS integration projects following acquisitions, Danisco utilize from consultants to a large extent. About half of all project resources are external consultants, with the other half being internal resources [A1;27]. During acquisition projects, other projects are down prioritized to allocate resources for the integration [A19]. The consultancies used are highly specialized within the area their tasks are assigned. One consultancy is used for HR tasks, another one for supply chain tasks, even though both functionality areas are within SAP [A1;52]. Within many functionality areas, Danisco have chosen two different consultancy partners; one for specialized tasks and another one for volume tasks, with consultants located in the same areas as Daniscos IT functions, and in low-price areas, such as Brazil, India or China respectively [A1;52].

Typically, a wide range of different consultancies is used for different tasks. The consultancies are typically specialized within one or two areas and don't span across

several business processes. These relatively small and specialized consultancies are used as the big international consultancies such as Accenture and Capgemini are considered not to be competitive with regards to price [A1;56].

While consultants are used for routine and specialized tasks, the company never transfers the final responsibility to externals, and thus do not outsource project management tasks.

> *We use external consultants to a large extent – but only as working horses. We have the principle that we are willing to outsource everything but responsibility. That means that we never use externals to do project management [A1;27].*

Consultants are not used for more strategic tasks related to the integration strategy either, as the strategy is tested, performed and non-negotiable [A1;7] and the approach is that integration capabilities should located in-house in Danisco [A1;27].

5.1.5 Framework overview of Danisco

The characteristics of the M&A act and Danisco's use of consultants in the post-acquisition IS integration is be classified according to the theoretical framework below.

Factors		Consultant classification
Targets relative size All transactions are acquisitions where Danisco is dominant. Two large acquisitions accounting for up to 20% of the employees.		
Type Horizontal acquisitions (tactic) and conglomerate acquisitions. The two large acquisitions are path-breaking.		**Muscle** Widely used on PMI of IS projects for standardized tasks. Especially in low-cost markets.
M&A experience 15 acquisitions over 9 years. Experience used in consecutive acquisitions.		**Expertise** No use due to no-responsibility outsourcing policy.
Integration strategy Absorbtion strategy for all acquisitions. Danisco is considered a "truly global company" with one set of business processes.	**Danisco**	**Craft** Used to a great extent when consultants with specialist knowledge work within a specific business process area of the IS.
IS integration strategy Assimilation strategy where all systems and infrastructure is switched to		**Brain** No use due to no-responsibility outsourcing policy.
IT organization Competencies in-house to operate and extend the IT landscape. Functions outsourced to external suppliers.		
Consultants Approximately half of all project resources are external consultants.		

Table 5-2 - Framework findings; Danisco

5.2 Carlsberg

Carlsberg produces, sells and distributes beer to markets, primarily within Northern and Western Europe, Eastern Europe, and Asia. In most of these markets, Carlsberg has the leading market position, often with more than 40% market share within the individual countries, resulting in 2010 in 110 hectoliters of beer produced and a group revenue in 2010 of more than DKK 60B (Carlsberg, 2011). More than 38,000 people are employed in the about 200 sites that the group consists of. Carlsberg is listed on the NASDAQ OMX Copenhagen stock exchange.

The three segments Northern and Western Europe, Eastern Europe, and Asia, are run independent of each other. Northern and Eastern Europe is considered one entity covering 17 countries, and this segment will be the focal point regarding Carlsberg in this study. Each of the 17 countries have their own CEO who is responsible for both top line and bottom line [B2;7].

5.2.1 M&A activity

Carlsberg pursues a growth through acquisitions strategy and thus has acquired a set of breweries in new markets, resulting in more than 50 acquisitions since 1997. In 2010 two new breweries were acquired in China and Nepal respectively (Carlsberg, 2011) and in 2008, large parts of Scottish & Newcastle was acquired, resulting in the largest acquisition Carlsberg has ever experienced. The Scottish & Newcastle acquisition opened up for new markets in France and in Eastern Europe, with Russia being the main revenue contributor [B1;18]. All the acquired companies are breweries, complete with production and sales organizations, but typically operating within different markets. The motives behind Carlsbergs acquisitions is to gain a market leader positions within the markets they operate, or to expand into new markets and become market leaders by acquisition [B1;16]. Furthermore, the acquisitions are synergy driven from a cost and revenue perspective, where procurement synergies are very central, but other synergies such as shared production capacity across the segments is expected to incur [B1;26][B2;50].

5.2.2 Integration strategy

Following the acquisition, a series of excellence programs are typically executed in the new business units top optimize the business as well as align given processes across Carlsberg [B1;4]. The excellence programs covers areas such as sales and marketing, production, logistics and finance [B2;7] and depends on the state of the acquired company. While the marketing efforts are run glocally[9][B1;4], an Add-On strategy has been pursued for the integration, where the company has been operated more or less independently after the acquisition, which is also the reason for there being a CEO per country. This has been the approach since Carlsberg started its acquisition stream in the 1990's, resulting in a diversified business that on a business process level can be considered to follow the conglomerate approach [B1;28].

[9] In Carlsberg, the term glocal refers to the Group making overall decisions within a function, but the deployment depends on local factors.

Due to the limited integration of business processes in the acquired companies, the IS integration strategy has been minimal since IS has not been integrated. It is also the case after the execution of excellence programs where business processes are changed, that the acquired business stays on its pre-acquisition IS platform [B2;9].

In 2008 Carlsberg initiated a business process integration project referred to as the Business Standardization Program (BSP), and in May 2011 it was rolled out in Switzerland as the first country in Europe. The purpose of BSP is to integrate the business processes across the European segment, which are very diverse due to the many acquisitions. With this project, Carlsberg is aiming at performing a pool-integration of all the targets acquired in Europe since the late 1990's. The project is co-owned by the CIO and the business [B1;53] and focuses on standardizing business processes on common platforms leading transparency. This is enabled through IT, why Group IT is also the corporate unit with the far greatest involvement in the project [B1;53]. The CIO reflects on the importance of IT in BSP:

> *When we want to deliver BSP it is understood that IT needs to be included and managed. […] The business want standardized processes, but before you can do that you need IT and infrastructure, so we have to provide that first. [B1;42]*

BSP defines business processes for a series of back office functions that are supported primarily in a global[10] SAP installation. Many of these back office functions are moved out of local setups, either to corporate functions or to regional shared service center [B1;4]. Thereby, as BSP is rolled out procurement, accounting and other functions will be centralized. Production processes will be partially standardized while sales and marketing will remain somewhat up to the different countries due to the different ways companies go to the market in the industry:

> *In France we sell into big customers like Carrefour who will then take care of further distribution to their stores. In Denmark we sell to Dansk Supermarked and to the kiosk on the corner. […] In Italy you need to have a box of beer under one arm, a bottle of booze in the other hand and a ham around the neck in order for you to be an interesting business partner. [B2;48]*

The project of migrating the former targets onto the corporate business processes, thereby integrating them from a business process view, is expected to occupy the IT organization for at least the next three years.

5.2.3 IT organization

As countries for the most part are run independently, each country also had their own IT depart until 2009, where IT organizations throughout Europe, were merged into one [B1;40]. As a result, the application portfolio is highly diverse with more than 10

[10] Global in this context covers the 17 countries in Northern and Western Europe.

differently configured SAP installations in Europe [B2;9], 60 HR applications [B2;28] and a "zoo of different applications" [B2;40], which are legacy systems from before the IT consolidation. Group IT has local IT resources in the different countries to operate and support most of these systems, as well as SAP competencies internally adding up to 450 IT employees. IT is perceived on three levels; server, database and application level. The server and database operations are outsourced to IBM [B2;40], while Carlsberg is very focused on the application layer.

5.2.4 Use of consultants

At the current state, Carlsberg IT uses many different consultancies as there are local IT suppliers in the different countries:

> *Last time we counted, we had between 350 and 500 local IT partners for our local IT organizations. We are significantly lowering that number now so we can choose who we negotiate with centrally and get some better prices that way [B2;24].*

The CIO describes Carlsberg as using a few big and a forest of small consultancies [B1;63]. Carlsberg uses consultants for a wide variety of IS tasks during the pool integration project, BSP. Initially strategic management consultants, McKinsey or Boston Consulting Group, were used to make high-level business cases for the project and for identifying synergies [B2;10]. For IS projects within the different business functions, other consultancies such as Accenture and Deloitte are used to identify synergies, assist in IT strategy definition for the area as well as manage the project [B1;63][B2;35]. This is for example the case with HR application integration and implementation of shared service centers of accounting.

The geographic aspect is important when Carlsberg chooses consultants [B1;57] and the aim is to move as many tasks out of Europe as possible, not compromising the output. Northern European resources are used for highly specialized tasks [B2;41], for projects related to strategy development of project management or for support of systems that are not standardized or run through the major platforms. All implementation tasks that can be specified are outsourced to externals in South Africa, The Philippines, Malaysia, China or India, where Accenture accounts for the largest share of these tasks [B1;57]. During the BPS program, more than 100 consultants [B1;40] have been making system configurations concurrently, and more than 200 Accenture consultants have been assigned to the project, why Accenture also participates with project management resources [B1;51]. Externals are not given the economic responsibility of projects, but have the advisory responsibility [B2;51] and are involved in the strategic and business tactic IS tasks [B1;69].

Carlsberg count on consultants in the development of new strategies and functionality and gets input from the externals on how to move the business forward in terms of process optimization on the IS side [B1;63].

Factors		Consultant classification
Targets relative size Substantially smaller than Carlsberg, but often targets with cross-border activities or multisite production facilities. Scottish & Newcastle was a very large acquisition.		
Type All acquisitions are of breweries and are thus horizontal.		**Muscle** Large base of externals, especially in low-cost markets, working with system configurations and predefined, well documented implementation tasks.
M&A experience Serial acquirer with almost 50 acquisitions since 1997.		**Expertise** Used for project management, for IS strategy sparring, for screening markets for new IS opportunities
Integration strategy Add-On strategy and conglomerate approach for all acquisitions. BSP project is to integrate all the previously acquired companies into the Group via a break through.	**Carlsberg**	**Craft** Higly specialized consultants are used to a high degree. For support of small applications in local language, for less defined implementation tasks, on the project planning side.
IS integration strategy Previously no IS integration strategy as the targets were not integrated, but run mostly separate. New IS integration strategy aligned with BSP will be a renewal strategy.		**Brain** Used to develop high-level strategic business plans, for IT strategy development in functional areas, for sparring, for synergy validation
IT organization Competencies within the former local IT organizations to support the "zoo of applications". SAP skills in-house. Server and database operations and support outsourced to IBM.		
Consultants Consultants used widely in the projects related to integration; for predefined implementation tasks, for strategy development, for support, for specialist tasks and as strategic business partners.		

Table 5-3 - Framework findings; Carlsberg

5.3 Grundfos

Since it was establishment in 1945, Grundfos has been a pump producer, manufacturing pumps for a wide variety of segments. The company has grown heavily and is now the world's largest in manufacturing and supplying pumps and pump systems, with 16,600 employees spread over 85 countries on six continents (Grundfos, 2011). 2010 lead total revenue of DKK 19,6B and the production of more than 16 million pump units. The company is considered one integrated, global entity and is mainly owned by a family foundation made by the founder, whose purpose is to keep Grundfos the leading pump manufacturer and thus has a very long-term orientation.

5.3.1 M&A activity

Grundfos has a two-fold growth strategy consisting of an organic growth strategy and an acquisition strategy [C1;1]. In accordance with this, 15 targets have been acquired since 2002. Furthermore, the company has divested a series of organically grown business units [C1;2], because they did not fit in with Grundfos corporate strategy. All the acquisitions fit into the corporate strategy focusing on the pump segment and can be characterized as horizontal. The CIO explains:

> *We have a strategy when we acquire companies, that it must be for our strategy on the pump segment. [C1;1]*

The targets are small in relation to Grundfos, typically with 70-100 employees [C2;97] which is caused by the industry being very broad and characterized by many small players [C1;2]. The larger targets have been of 200-300 employees [C1;3] while the biggest acquisition was of a multi site US manufacturer in 2007, with 400 employees. Despite the relatively small size of the acquired business units, the integration process has proven challenging:

> *[…] when we have acquired, the targets have been relatively small. Thereby it's not being said that they haven't been complex, because acquisitions are when other cultures are added in a company. And we haven't been very good at that. [C1;3]*

Late involvement of the IT function in the acquisition is considered to increase the complexity of the post-merger integration [C1;5], while early involvement has proven the opposite in the latest divestiture [C2;33].

5.3.2 Integration strategy

Grundfos has two integration strategies depending on the rationale behind the acquisition. Companies that are acquired to become a part of the Grundfos brand and global organization is referred to as *integration businesses*, while companies that are acquired for other strategic reasons, for example related to market position in low-cost segments, are referred to as *separation businesses* [C2;2]. Integration businesses follow an absorption strategy, while separation businesses follow an add-on strategy. In alignment with the corporate integration strategy, the IS integration strategy depends

on whether the company is an integration or a separation business. The CIO points out the difference from an IS integration perspective:

> *Integration businesses are all those who run SAP. The separation businesses are those who can do what they want. [C1;20]*

Separation businesses stay intact, with their own IT organizations to operate and support their own systems, but they get access to extranet, intranet, email and simple consolidation of financials [C2;7]. Additionally, they can utilize from the groups resources if relevant [C2;4], and they can be transferred to a Grundfos template of the SAP platform to gain economics of scale, if they are to upgrade their ERP for other reasons [C2;17]. But Grundfos IT organization is not responsible for their IT [C1;24].

Integration businesses are integrated into the core company following the concept of an assimilation strategy. From an IS perspective, two major roll-out projects in addition to mail and intranet are included in this process; an infrastructure project and an SAP project [C2;9], and in addition there are a series of smaller projects depending on the business of the acquired target. The infrastructure is standardized and the SAP follows a template who can be configured allowing the business unit to keep a local nuance, which is considered to have strategic relevance in given markets [C2;17]. Most often, the acquired companies have local pockets of IT after the integration process, including both hardware and software [C2;25]. The pockets of IT will be phased out as the company shifts to Grundfos platforms, but the process can be long [C2;47]. The IS integration rarely happens immediately after the acquisition, as the time is defined by the business process owners in collaboration with IT [C2;83], while the targets also have influence on the speed [C1;83]. The integration time spans between acquisition, but usually takes from one to three years, with the goal of reducing this number to one year [C1;69].

5.3.3 IT organization

Grundfos IS focuses on having internal resources and capabilities to complete the support, operations and development, relevant to the company and thus consists of 350 people, of where 150 is located at the corporate headquarters in Denmark, and the rest are located in USA and Hungary. Additionally, a new site with IT resources is being established in South America [C2;46] Most business processes through the corporation are built around SAP, why competencies within SAP account for 120 people in-house [C1;49]. The operations and support of servers and data is outsourced to CSC (IBM, 2007), while the infrastructure of the company is streamlined throughout the company [C1;73]. When reflecting on the capabilities of the IT organization in relation to mergers and acquisitions, an IS Manager states:

> *When first we arrive at the technical tasks, then we will deliver the project without obstacles. Today technical issues rarely cause the challenges. It is the organizational issues and process ownership and stuff like that.*

5.3.4 Use of consultants

Externals consultants are perceived either as *resources* or as *strategic consultants* [C1;55]. The company utilizes from consultants as resources when no internal IT people with the same competencies are available. This is often the case with project managers, SAP module developers [C2;61]. IBM often supplies project managers, while Accenture provides both project managers and other IS resources. Strategic consultants, on the other hand, are included in strategic IS projects that has severe impact on the business or business processes [C1;55]. Recently, this has has been the case with the design of new IS architecture and an ongoing demand-planning project. Grundfos IS has the responsibility of delivering the projects in their portfolio, why the responsibility in general is kept in-house [C2;59]. Therefore, when using external project managers, they are allocated on projects with external consultants from other consultancies, or freelancers, or with internal resources [C2;61]. Approximately 10-15% of the resources in Grundfos IS are external consultants [C2;71].

Following acquisitions, resource demand is high [C1;75], and it is prioritized to allocate internal IT resources for the integration tasks, when meeting the new business unit to send a signal of an integrated company as well as appreciation of the acquired business [C2;67]. The internal resources need to be reallocated from their ongoing projects, and mostly external consultants fill these.

Factors		Consultant classification
Targets relative size Small targets why all deals are characterized as acquisitions with Grundfos being dominant.		
Type All acquisitions are horizontal in line with the corporate acquisition strategy.		**Muscle** Uses resources frequently to perform operational or predefined tasks during post-acquisition integration reallocation.
M&A experience 15 targets since 2002. Most targets are integrated into the core company.		**Expertise** Very limited use of consultants in an expertise role.
Integration strategy Integration strategy and separation strategy. Absorption and Add-On respectively.	**Grundfos**	**Craft** Use project managers or specialists where similar resources are not internal in the organization - to a limited extent.
IS integration strategy Integration strategy follows an assimilation strategy over time, with co-existence initially. Separation companies are not integrated on the IS side.		**Brain** Consultants used for strategic IS project with business impact. This is not the case for post-acquisition integration of IS.
IT organization In-house resources for SAP, CRM and other business critical platforms. Competencies within all aspects of development, operation and support. Servers and data outsourced.		
Consultants Consultants are used as resources for predefined tasks, and for strategic, undefined projects related to IS.		

Table 5-4 - Framework findings; Grundfos

5.4 Norican Group

Norican Group is a conglomerate with two businesses, DISA and Wheelabrator. DISA is an industrial manufacturer of production equipment for iron molding purposes, while Wheelabrator is a steel and iron surface preparation OEM[11]. The group has production sites and sales organizations spread across Europe, as well as in North America, in India, Japan and in China and customers in more than 100 countries. The group employs 2,300 people and had a 2009 revenue of €285M (Norican Group, 2010).

5.4.1 M&A activity

Norican Group has existed since 2008. Leading to this is a story of mergers, acquisitions and carve-outs involving DISA and Wheelabrator. DISA was owned by A.P. Møller until 2005, when it was sold to the equity fund Procuritas. In 2006, Wheelabrator was acquired by MidEuropa Partners, who later acquired DISA from Procuritas in 2008 (MidEuropa Partners, 2011). At that time, DISA consisted of both their molding business and a surface preparation business, Shot Blast, who was integrated and functioned as one. Wheelabrator was a surface preparation manufacturer, and had a strong worldwide market position. The company was divided into an OEM division and Wheelabrator Plus, which is an aftersales division. As MidEuropa Partners acquired DISA, Norican Group was established as a group function for the two companies. Consequently, Shot Blast was carved out of DISA, and split into a manufacturing and an aftersales function as it was integrated into Wheelabrator and Wheelabrator Plus respectively [D1;7]. Wheelabrator was larger than Shot Blast at the time of the acquisition and was the most powerful [D1;32]. Despite this, the process is considered a merger in Norican Group (MidEuropa Partners, 2011), due to Shot Blasts large relative size and impact on business processes.

5.4.2 Integration strategy

The Wheelaborator and Shot Blast merger followed an absorption strategy with elements of "Best of Both", where production processes were preserved, but most part of the Shot Blast was integrated into the Wheelaborator business, adapting to the business models of those two divisions [D1;34]. At the same time, DISA's molding division was considered an Add-On entity in relation to the combined business, and thus no integration plans were considered for DISA's molding division [D1;3]. Due to the dominant market position gained by combining Shot Blast and Wheelabrator, the German competitive authority was involved and imposed Norican Group to divest some of their business, for the merger to be approved. This resulted in divestment of one Italian and two German business units (Norican Group, 2010). The involvement of the competitive authorities postponed the integration, as it was not legal to begin integrating the companies before the deal was approved, resulting in a 9 month integration planning phase, before the company could start executing its integration plan [D1;24].

[11] Original Equipment Manufacturer

The integration plan focused on first identifying and harvest the "lowest hanging fruits" [D1;19] in terms of eliminating redundant functions, moving labor from high-cost to low-cost markets, and thus focused on cost-synergies who also affected the IT side.

> *[…] we went after picking the lowest hanging fruits first. Where two people were doing exactly the same, we can get by with one. That was the way. At that point you don't get around to replacing IT systems. [D1;19]*

The next level of integration included a shift to one common business model and one common IT platform to support this. Wheelaborator and Shot Blast were both using AX ERP systems, which were highly customized, supporting different business processes [D1;36]. The AX systems were shifted to Wheelaborators installation, following an assimilation strategy, though expanding the functionality of the system, and making further customizations.

5.4.3 IT organization

Norican Group IT, the result of the combined IT organizations of the companies that the group consists of, has in-house competencies within operation and support of the AX systems as well as CRM system [D1;36]. The IT organization consists of about 50 people who support both the AX installation of DISA and of Wheelabrator [D1;40]. There is focus on having competencies in the IT unit who understand both the business side related to IT in Norican Group, as well as more technical insights in their IT setup [D1;38]. In line with this, changes to the ERP, as well as to other systems, are driven by the business who proposes changes or states requirements to the existing business processes [D1;56].

5.4.4 Use of consultants

PA Consulting was used to establish the new strategy program, focused on new or optimized processes within production, marketing, sales and R&D [D1;14], tasks that builds and depends on IT. Additionally, they were used to assist and facilitate during the nine-month post-merger planning process [D1;30]. Prior to the acquisition, a series of synergies had been identified and the consultants were used to realize these synergies. The program manager explains the task given to the consultants:

> *[…] the consultants had been given the answer – "There is a number of billion we need to find, this is where we will find them - now break it down and tell us how to do it."[D1;15]*

As the IS integration to one AX ERP system was carried out, external consultants were used for specialist assignments and configurations to the system, as the in-house IT competencies does not include development on the platform. The data migration from one platform to another were handled internally, and the project was driven in-house [D1;36]. In addition, consultants were used to make an objective assessment of the ERP system from a process perspective [D1;62]. Due to the economic downturn's

negative impact on the market, the company kept the use of external consultants during the IS integration to a minimum and thus used consultants less than expected initially in the integration planning [D1;36].

Factors		Consultant classification
Targets relative size Relatively even sized companies.		
Type Horizontal integration on part of the business, scope expansion due to DISA's molding division.		**Muscle** Consultants were not used as muscle – in-house resources were used for all tasks they were capable of.
M&A experience No recent acquisition experience. Most M&A experience was from being purchased and sold by equity funds.		**Expertise** PA Consulting was used to make objective assessments of the ERP and they assisted in the integration planning.
Integration strategy Partial absorption, partial add-on integration strategy.	**Norican Group**	**Craft** Consultants were used for all development tasks related to the ERP, as well as for other specialist tasks.
IS integration strategy Assimilation strategy with customizations to the core ERP system to include the new units special requirements.		**Brain** The company used consultants to define their new strategy program and to identify how to achieve the expected synergies.
IT organization Driven by business requirements. Limited resources, focused around the operation and support of the major systems.		
Consultants Used in the integration planning, for objective assessments and to develop in the ERP platform where the company had no competencies.		

Table 5-5 - Framework findings; Norican Group

5.5 The role of consultants in post-merger IS integration

In chapter 4, four uses of consultants in the post-merger integration of information systems was presented as a part of the theoretical framework. The empirical exploration presented in this chapter has classified the companies' use of consultants in the post-acquisition integration of information systems, into these four types.

	Danisco	Carlsberg	Grundfos	Norican Group
Muscle	Extensive	Extensive	Extensive	No
Expertise	No	Extensive	Limited	Some
Craft	Extensive	Extensive	Limited	Extensive
Brain	No	Extensive	No	Some

Table 5-6 - Case companies' use of consultants

Table 5-6 presents an overview of the use of consultants in the post-acquisition IS integration phase, in the acquisitions performed by the case companies. This simplified overview is not related to the specific acquisitions cases of the companies, but it does present two relevant findings. First, all of the case companies, to some extent, use consultants for the integration of information systems following their acquisitions or mergers. Second, the empirical exploration supports the classification of the four uses of consultants.

5.5.1 Consultants as an inevitable part of the integration team

The case companies were identified and selected based on a set of criteria presented in chapter 2. The companies' positive use of consultants in their post-merger integration of IS was not part of the selection criteria, nor is this information that is normally publicly available, why it was not known prior to the interviews whether the companies utilizes from consultants during the post-merger IS integration. In all instances throughout this study, the case companies use external competencies in the IS integration following their mergers or acquisitions. The extent to which they are being used varies between acquisitions and depends on the acquirer and the target, but consultants are being used in all of the cases, which is consistent with previous findings from the financial sector (Wirz & Lusti, 2004). This emphasizes that consultants are an inevitable part of the integration team and thus affect the integration process, why the exploration of consultants in the post-acquisition IS integration can be considered a relevant topic in the research literature.

5.5.2 Four uses of consultants

The empirical data supports the classification into four types of consultants, in accordance with the external experience matrix presented in chapter 4. Table 5-6 - Case companies' use of consultants

shows that all four typologies are identified throughout the case studies of this thesis. The matrix appears to be exhaustive, as all utilizations of consultants in the post-acquisition integration of IS could be classified into it. Furthermore, no categories are unused, emphasizing that none of the categories are unnecessary. As the matrix is exhaustive and does not have unnecessary categories, it is regarded as having strong

applicability (Gregor, 2006), why it makes a strong base for the further analysis of companies' use of consultants in the post-merger integration of information systems.

5.5.3 Conceptual view of the post-acquisition integration

This study shows that at least some companies use consultants in the post-acquisition integration of information systems, and that the consultants have different roles and performs different tasks based on the acquiring company as well as the specific acquisition. The companies' different uses of consultants can be classified into four categories; Muscle (M), expertise (E), craft (B) and brain (B), which has proven to have strong applicability in the study of consultants in the post-acquisition integration of IS. Companies' use of consultants together with the classification of consultant utilization makes the base for a modified conceptual model of the post-acquisition integration.

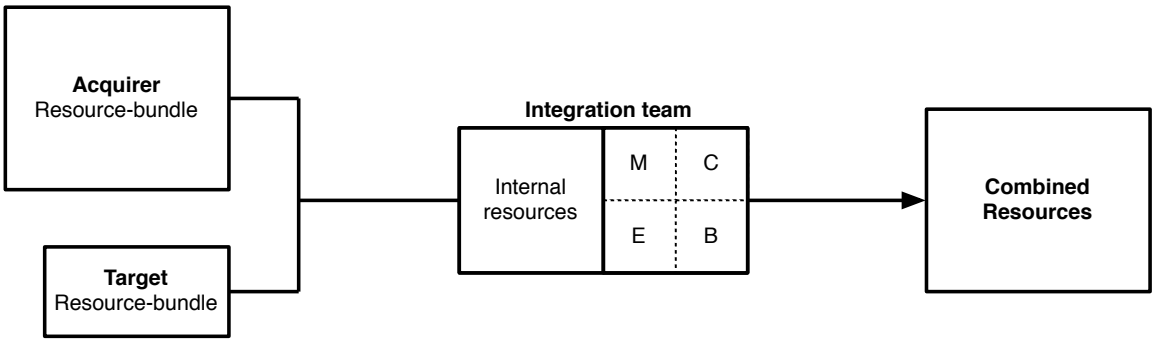


Figure 5-1 - Modified conceptual model of the post-acquisition integration of IS

The conceptual model emphasizes that (1) consultants are an inevitable part of the integration team that performs the post-merger IS integration, and (2) that companies can use consultants for different purposes in performing the resource combination.

The four typologies will make the base for the analysis of how and what companies use consultants in the post-acquisition IS integration in the next chapter.

Chapter 6

Exploration of the use of consultants in PMI of IS

The previous chapter explored the use of consultants in integration projects for each of the case companies with the theoretical framework of this thesis being the focal point. This chapter goes one step further in exploring the use of consultants in the post-acquisition IS integration. The first section explores the four types of consultant utilization across the different companies, and key findings regarding the four types are presented. The following sections go deeper into the context in which the consultants are being used for PMI of IS. Here a new process view of the post-acquisition IS integration is presented, derived from the empirics of this study, and the use of consultants is linked to the process view. The impact of uncertainty and technological challenges is examined from a consultant utilization perspective, together with acquisition and integration experience. Finally, the section introduces six IS integration archetypes and links them with the types of consultants used in each of them. This chapter is analytical in its essence and the purpose is to present findings, while the following, final chapter will put these findings into a theoretical context, relating it to the extant literature and thus discuss the contributions of this thesis.

6.1 Characteristics of the four types of consultant utilization

The four types of consultant use proposed in this study are related to the company using them due to the supplement-complement and resource-capability considerations. Thereby, when a consultant performs a task in the post-acquisition integration of one company, he might be used as a supplementary resource, while performing the same task in another company, he is a complementary resource to the company. This perspective helps exploring how consultants are used across companies beyond what tasks the consultants perform, and thereby gives insight into how companies approach the post-acquisition IS integration from a resource-based view, accounting for the complexity and heterogeneity present in mergers and acquisitions. This section presents findings on the four types of consultant utilization, how the case companies use each type, as well as factors important to the companies related the different uses of consultants.

6.1.1 Muscle

In relation to most of the post-acquisition IS integration cases covered by this study, consultants have been involved to perform tasks that the company already has competencies to perform in-house. The use for consultants as muscle is thereby driven by the high resource requirements that the temporary integration projects tend to demand. One CIO explains about his IT organization:

I assume that my people are engaged; they should be occupied 110% of the time. [C1;75]

None of the companies have available IS resources in-house solely dedicated to post-acquisition integration projects, who are not dedicated to other tasks in between the acquisitions. Therefore most of the companies use supplementary resources in the integration process to meet the resource demand on the rather standardized, predefined and well documented tasks [B2;46].

6.1.1.1 Muscle tasks

The tasks performed by consultants as muscles are highly standardized. In most acquisitions, the consultants are used for different ERP integration tasks within business process areas, such as finance, HR or production or for migration tasks. Furthermore, they are being used for system configurations on large-scale projects where the resource demand is exceptionally high for a limited period of time, or operational tasks.

6.1.1.2 Two ways to use resources as muscle

Consultants as muscle can be used two different ways in the post-acquisition IS integration in the cases where the targets are relatively small in relation to the acquirer. The consultants can be allocated on the specific IS integration project [A1;27], whereby they become part of the integration team. Alternatively, externals are used to free up internal resources which are then allocated to the integration project [C2;67]. The argument behind substituting internal resources with consultants to allocate them on IS integration projects, is that the acquirer then will be capable of meeting the target with its own resources, which can reduce resistance towards change [C2;67]. The two approaches can be related to the firmness of the IS integration strategy, i.e. the degree to which the IS strategy differs from one acquisition to another. In the acquisition cases where the IS integration strategy was firm and the integration timeline, the application landscape and legacy applications was not up for discussion, the acquirer was capable of using externals for the sub-projects of the integration, thus allocating externals directly to the integration team. In the cases where the IS integration strategy was not firm, the acquirer preferred to send internal staff to perform the integration, consequently allocating external staff to perform operational tasks.

6.1.1.3 The price is key

A great part of the external resources used in post-acquisition IS integration projects can be classified as muscle. As these tasks are rather standardized and the volume is high [B1;57], one of the major focus areas for IS decision makers is regarding the price. One strategy to negotiate competitive prices on consultants as muscle is to use consultants in low-price markets, a strategy that is used by all the companies who use consultants as muscle in IS integration. This is often the case as the volume for standardized tasks in these companies is large enough so that they use consultants abroad for other projects than post-acquisition integration projects, and the integration projects thereby utilizes from the companies' sourcing strategies. To be

able to benefit from low-cost markets, the companies select a few, large consultancies with high capacity to gather their different IS projects [B2;24].

6.1.2 Expertise

The use of consultants as expertise occurs when consultants are hired as supplementary capabilities in the post-acquisition IS integration. Consultants are being used for expertise tasks to less extent, than as muscle or as craft resources. Expertise capabilities are utilized from as the company uses consultants to assist in or facilitate the integration planning or to do project management tasks where the project plans are not predefined, but where the company already has capabilities within the same area.

> *[…] in the beginning, you need to specify and transform your strategic business case to an operational business case. That requires a great amount of [company] knowledge and it requires some [company] people and some consultants who know [the company]. [B2;45]*

6.1.2.1 Expertise tasks

The companies use expertise capabilities to a relatively limited extend during the integration projects compared with muscle and craft resources. The tasks include high-level project management, project planning sparring where extensive knowledge of the company is required, and objective assessments of business processes or IS. Large scale integration subprojects, whose participants mainly consist of externals consultants, are often assigned project managers from the same consultancy to facilitate the process [B1;51], despite the fact that the company has capabilities to manage the project with external participants. In some projects related to the post-acquisition integration of information systems, consultants are used for sparring during the design work of the project where they work closely together with the company [B2;45]. Finally, consultants are used to perform objective assessments of the integration plans or business processes in the company [D1;62], i.e. to validate the internal assessments made by the company.

6.1.3 Craft

All four case companies use consultants as craft in their post-acquisition IS integration projects. These resources are utilized from to perform tasks that the acquirer and the target do not have competencies to perform themselves.

> *[W]e have used consultants on those areas where we have made some kind of customization because there was a special need, or when we have made modifications to the system. [D1;36]*

The tasks are often well defined and the project managers are able to specify the requirements that the craft resources are to perform to a fairly detailed level. Consultants, in these cases, are used due to their highly specialized knowledge that they use to execute the IS integration strategy of the given acquisition [A1;52][B2;41].

6.1.3.1 Craft tasks

Craft resources are used to a great extent for implementation tasks, where the integration project requires specialist knowledge that is not required in the IT organization on an operational or support level. Companies mostly use craft resources for ERP implementation tasks [D1;36], within different processes of the ERP implementation [A1;52] or for customization or integration of small scope applications that are locally anchored or heavily modified to fit specific business requirements [B2;41].

6.1.3.2 Importance of localized craft resources

Consultants as craft are often relatively local, being based where they perform the tasks. In many acquisition cases, the targets have legacy applications that cannot be out phased initially and where the integration into a corporate platform or the data needs to be accessed through business intelligence applications, which again requires work on the legacy applications. These applications are often local solutions with little or no documentation and written in local languages, why they are not being supported internally or by the large IT consultancies. Therefore smaller local consultancies are used for support or customization tasks [B1;57]. Furthermore, consultants with specialist knowledge within a specific sector, with extensive knowledge of the acquirer or with specialist knowledge within a specific non-standard business process are more difficult to find and typically are located closer to the business from a geographical perspective.

6.1.4 Brain

The companies utilize from consultants as brain in the post-acquisition IS integration by using externals to facilitate strategy definition related to the integration or to the future IS landscape of the company. Furthermore it is the case as consultants are given the task to plan the realization of the expected synergies related to the merger or to point out new opportunities that can be interesting for the newly integrated company.

> *[T]here are a lot of situations, such as when you go into supply chain, where nobody have tried to do this before. In these cases we have been through a lot of brain drain with externals to get things rolling. [B1;49]*

Brain capabilities are used for large scope projects where the outcome has impact on a corporate level, through redesign of existing business processes or adoption of new technology or IS.

6.1.4.1 Glocalization of the brain capabilities

Brain capabilities are characterized by being utilized by companies both globally and locally. Local consultants are used because of their knowledge of the company, typically from other projects [B2;45]. In cases where specific strategic capabilities are needed for the integration, but are not available in the local environment, international brain capabilities are used, regardless of their location [B1;74].

This section has presented findings related to the four types of consultant use, discussing the key factors for each type. The next section will present findings on the integration process, while the following sections will link these findings with the companies' use of consultants.

6.2 The integration process

The acquisitions explored through the empirical study in this thesis gives insight in how companies perform the post-acquisition integration of IS. Improving the understanding of this topic provides a base for further understanding how companies use consultants in the IS integration. This section presents findings on how companies perform the PMI of IS from a process view, an area that has not previously been explored in the extant literature. Companies' use of consultants is put into this context, based on the empirical exploration in chapter 5 and the characteristics of consultant utilization discussed earlier in this chapter. The impact of uncertainty and the technological challenge of the integration are discussed, as well as experience and how experience affect the use of consultants. Finally six integration archetypes are presented and the companies' utilization of the four types of consultants is linked to these.

6.2.1 Post-merger IS integration as a resource bump

PMI projects significantly increases the need for IS resources of the new, combined business for a limited period of time while the IS integration is ongoing. This temporary resource demand related to IS integration will forward in this thesis be characterized as a 'resource bump'.

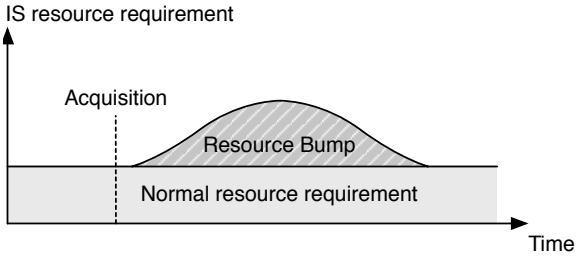


Figure 6-1 - A resource bump following an acquisition

The size of the resource bump, i.e. the required amount of resources to perform the IS integration, depends on the M&A act and the integration strategy, and thereby on the scope of the integration project.

The integration, and consequently the resource bump, does not always occur immediately after the acquisition. Additionally, the scope of the integration is not always limited to the integration of one target, but might include integration of several targets at once. Thus three types of integration can be outlined from a process view.

6.2.2 Sequential and pool integration

When Danisco and Grundfos acquirer targets, the integration onto the corporate IS platform happens sequentially, due to a corporate absorption strategy and an IS assimilation strategy. In most cases the targets are integrated within a relatively short timeframe after the acquisition. The integration project requires more resources than the normal resource level of the companies' IT organizations, of which most are muscle and craft resources due to the limited scope and predefined tasks laid out by the IS integration strategy.

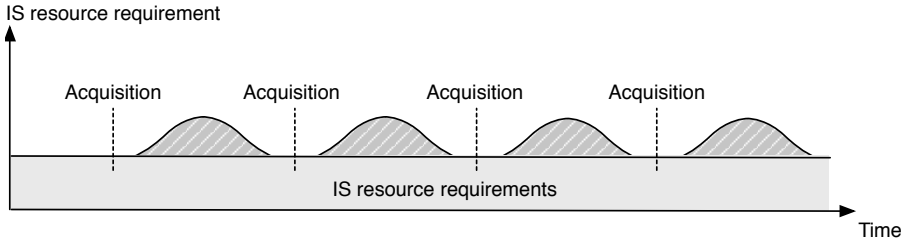


Figure 6-2 - Resource bumps in sequential integration

Following acquisitions, the IS integration is often considered to be sequential whereby the acquirer rolls out new infrastructure, ERP systems and an application suite, replacing the former IS of target. Here the scope is limited to the target that has recently been acquired. This process is fairly documented, and often assumed in the extant literature, but that is not sufficiently representative for the way that companies perform the IS integration following acquisitions.

In contrast Carlsberg acquired several companies, leaving the targets as separate SBU's while keeping their information systems and IT operations intact. The integration of the separate SBU's into one unified company happens through one large project including all the targets at once. This integration approach is referred to as *pool integration* onwards in this thesis and covers the cases where a company gathers the integration of IS in two targets or more in one single project. Pool integration logically leads a larger resource bump at one point in time as the scope of the integration project increases.

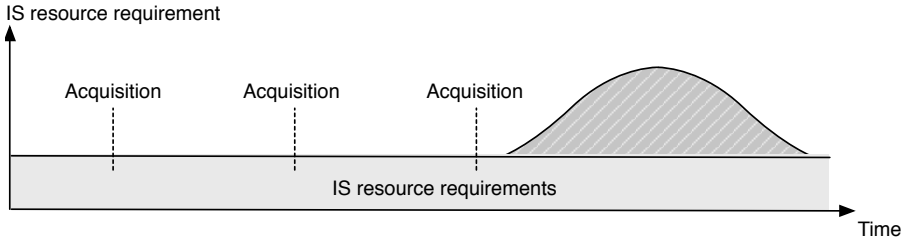


Figure 6-3 - Resource bump in pool integration

Pool integration projects are larger and thus also have larger impact on the business of the new company. This becomes evident as Carlsberg's pool integration of breweries in 17 European countries covers most of all business processes in the entire organization. In this case the company chose to pursue a breakthrough integration

strategy with an IS renewal approach through the BSP project. Pool integration projects are therefore, within the scope of this study, path-breaking to a larger extent than sequential integration projects. As the pool integration projects are relatively larger and closer to the business than sequential integration projects, the involvement of consultants includes both resources to deal with the large volume of implementation tasks, and capabilities to assist with the strategic and high-level tasks that emerge as part of the integration.

In pooled integration, a minor resource bump might appear following each of the acquisitions. This occurs as the acquirer want to be able to extract management information, such as being able to automatically consolidate financial on a corporate level, and therefore initially has to allocate a small amount of resources to perform the task.

The integration following mergers is normally considered to be the most difficult and complex type of M&A integration as the scope of the integration spans over the entire business. Depending on the scope, this can very well be the case for pooled integration projects too, as it is the case with Carlsberg where the IS integration affects all business processes.

6.2.3 Delayed integration

As it is the case in pool integration, the IS integration process can occur a long time after the acquisition takes place, even after the company has been engaged in other acquisitions subsequently, and the IS integration of these targets has taken place. This is the case in some of Grundfos' acquisitions. Grundfos has acquired targets as separation companies following an add-on strategy on a corporate level, thereby not integrating the IS landscape of the targets. Later, due to changes in the corporate strategy, the companies changed status from separation companies to integration companies, facilitating integration of the target on the IS level. Thereby the IS integration was not planned until several years after the acquisition. In this case, the resource bump related to the post-acquisition IS integration occurs delayed. As with pooled integration, delayed integration is not accounted for in the research and consultancy literature, which mainly focuses on speed in the integration of targets (Angwin, 2004), assuming a sequential approach. Several acquisitions performed by the companies explored in this study have been through delayed integration as a result of changes in the corporate strategy. From a technical perspective, delayed integration is similar to sequential integration as the IS landscape has been preserved in the target since the acquisition. From a change management perspective, the integration of information systems becomes significantly more difficult the more the integration is delayed [A1;37][C2;85]. As these companies have been allowed to continue operating as somewhat independent entities, the organizational culture in the SBU's are intact or enforced by the acquisition whereby the resistance towards corporate integration becomes an issue [C2;87]. Furthermore, the news value of the acquisition is seen as an important factor in the integration if the acquirer states what the consequences for the target will be up front. The news value is no longer present

in the cases of delayed integration, further complicating the IS integration of the target [C1;26].

6.2.4 Integration strategy's effect on the resource bump

As discussed in this section, the corporate and the IS integration strategy affects the integration from a process perspective and determines the size of the resource bump as well as the time where it occurs. The resource bump occurs due to the integration and not necessarily following the acquisition, why the notion of post-acquisition or post-merger integration can wrongly lead to the perception that the integration occurs immidiately following the merger or acquisition, and not as a result of the deal. This consideration deserves attention as the terms are being used, as they will throughout this thesis.

The integration delay can occur as the result of changes in the corporate integration strategy leading to changes in the IS integration strategy, or the corporate strategy at the time of the acquisition can be to postpone the IS integration until the rest of the business is ready for other reasons.

6.3 Using consultants to manage the resource bump

Post-acquisition IS integration projects have high priority in the IT organizations of the acquiring organizations [C2;55], which ensures that the acquirer allocates resources to perform the IS integration. In some acquisitions this happens through down prioritization of other ongoing IS projects during the time of the integration which frees up resources that can be allocated to the integration project [A1;19]. Nonetheless, only limited resources can be reassigned during the integration, why integration projects do represent resource bumps exceeding the capacity of the IT organizations [A1;75].

Companies generally deal with resource bumps caused by post-acquisition either by allocating external resources and capabilities directly to the integration project, or by allocating them to perform internal operations or participate in other ongoing projects in the IT organization. These are referred to as *direct* and *indirect* allocation of external resources respectively.

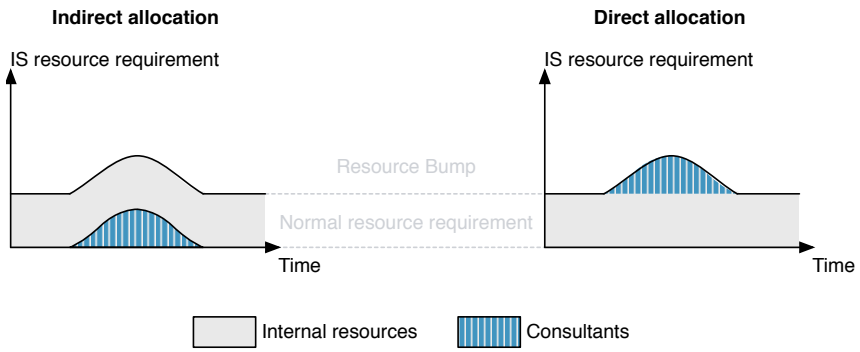


Figure 6-4 - Two approaches to dealing with the resource bump

Direct allocation is used most frequently, and occurs when Danisco uses muscle and craft consultants to participate in the integration projects under an internal project manager, when Carlsberg uses a variety of consultants on different subprojects of the BSP, as well as when Norican uses consultants in the post-acquisition integration planning and for the ERP integration. Grundfos occasionally uses direct allocation for integration projects, but most often uses indirect allocation to free up internal resources to participate in IS integration projects.

Differentiating between direct and indirect allocation of consultants to deal with the resource bump caused by acquisitions, helps providing valuable insight in how companies use consultants. Previously consultants have been assumed to be allocated directly on the integration team, performing integration-specific tasks. This is the case in some, but not in all integration projects. The observation that consultants are used to relieve internal resources from their tasks for them to be reallocated to integration projects, gives consultants a whole new role in the IS integration process. Consultants can strategically be selected and allocated to where they bring the most value for the company. This needs to be considered as companies gain experience from integration projects, as the learning might be different depending on direct or indirect allocation of consultants to deal with the resource bump. When the companies internal resources are allocated to the project they build tacit knowledge, while the use of externals on the integration project might not lead to the same amount of knowledge kept internally, as the consultants leave the organization after the project. On the other hand, direct allocation of consultants can bring benefits as the consultants are likely to bring integration experience into the organization, which the company then can benefit from. In relation to this, the impact of experience, as well as the scope of the integration project is discussed in the next section.

6.4 Integration experience and acquisition type

The scope and repetitiveness of integrations have impact on the perceived difficulty of the task at hand. Below these factors impact on how consultants are used in the integration are discussed.

6.4.1 The impact of uncertainty

In integration projects with a high level of uncertainty, external capabilities, i.e. consultants as expertise and brain, are used to a larger extent than in post-acquisition integration projects with little uncertainty. The uncertainty is tied to the scope of the integration project and the impact on the business. The merger of Shot Blast and Wheelabrator, and the European integration project in Carlsberg are both large scope information system integration projects with severe impact on the companies' respective business operations and business processes. Both of these integration projects are path breaking and rely on external capabilities to assist in strategy definition and high-level planning. The acquisition cases where the serial acquirers integrate relatively small targets sequentially lead little uncertainty regarding the

ongoing business on a corporate level, and the use of external capabilities to integrate IS in these cases is practically none. One reason for this is the technological challenge facing acquirers.

6.4.2 Technology is rarely the problem in small acquisitions

In IS integration projects performed by serial acquirers, the technical tasks including infrastructure roll-out, application landscape integration and data migration rarely represents an issue [C2;95][A1;72], and is thus not considered a challenge during the integration, as opposed to cultural integration. This is due to documented infrastructure policies and predefined or global ERP templates that can be rolled out in the targets [C1;73]. The complexity and uncertainty of the post-acquisition IS integration in small scope sequential acquisitions is thus relatively limited and only muscle and craft resources are used for this type integration. The resource bump is still present, and external resources are used widely for these projects, allocated directly or indirectly, to perform technical tasks. As the integration scope becomes larger, as discussed regarding Norican and Carlsberg, the technological challenge of the IS integration is expected to be more distinct leading more uncertainty as discussed above, which again explains the increased use of capabilities in these projects.

6.4.3 The embracement of experience

Serial integrators build on their experience and tend to keep responsibility of the IS integration internally [A1;27][B2;59]. As long as the acquisitions follow the same path, and the companies have experience in IS integration, they do not utilize from brain nor expertise capabilities for the integration. Inexperienced integrators on the other hand, use consultants as brain and expertise in the integration process to utilize from the experience from similar integration projects that the consultants bring into the project [B1;71]. Thereby companies in these cases use consultants to kick off the integration projects with external capabilities, rather than building them internally. Despite Grundfos' acquisition and integration experience, the CIO still sees an opportunity to benefit from external experience in improving the integration capability and build internal know-how:

> *I would like that when we do this, we would have some people here that assist in setting the stage or laying out the strategies. They probably don't have to be there all the way through, but be there to make the strategy for how we integrate this company. People who have tried it before, who have tried it 100 times before. That would be super. [C1;35]*

Companies with IS integration experience thereby build integration capabilities and keep the responsibility internally. Meanwhile companies with little or no integration experience, within the scope of the integration they are facing, use externals to utilize from their experience. Finally companies can use consultants to assist in building IS integration capabilities internally as contrasted to consultants solely solving the integration issues at hand.

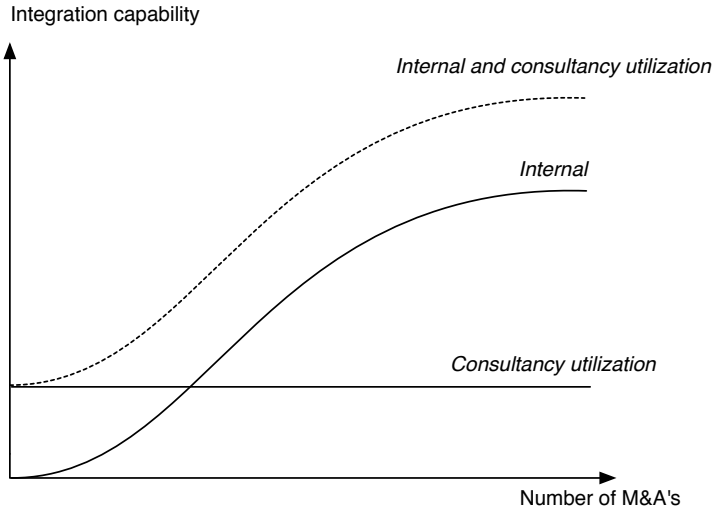


Figure 6-5 - Integration capability and experience

6.5 Use of different consultancies

Companies do not hire one consultancy for a post-acquisition IS integration project, but use a variety of different consultancies for different tasks or different subprojects [A1;52]. As muscle, companies either use one large consultancy to deal with the resource bump that can be handled by supplementary competencies, or they use different, typically smaller consultancies that are specialized in one given business process or technology. For other specialist tasks where the companies use craft resources, they use many different consultancies that can deal with local setups, special configurations or language barriers. In the cases where one consultancy is used for muscle resources, the volume tasks are moved to low-cost markets [B2;41]. When expertise capabilities are used for high-level project management or assisting in the integration process, the project manager used is not from the same company as the project associates [C2;61], which might be from another consultancy or internal. Brain capabilities might be from the same company throughout the integration projects, but they are rarely from the same company that supplies the integration resources for the project. The large amount of different consultancies used is mainly caused by the companies use of consultants for other projects in their project portfolio, and that the post-acquisition IS integration projects are not totally isolated from the other tasks and projects of the IT organization according to the discussion on direct and indirect allocation of resources above. Thereby, the company already uses a variety of consultancies for specialist tasks and thus can allocate these specialists to specific tasks in the integration process. Additionally, the target brings an IS landscape of its own into the combined IS structure of the new, combined business and to be able to integrate it, even through following an IS assimilation strategy, competencies within these systems and infrastructure is required and not necessarily available internally in the acquiring IT organization or with the consultancies they use.

Consultancy loyalty appears in the acquiring companies both towards small and especially larger vendors. This follows the concept of *healthy partnerships* [B1;63] where both the company and the consultancy benefits from the cooperation. This means that the companies put themselves in a position to build capabilities based on the experience and practices of the consultancies, rather than solely using consultants for having a task solved.

6.6 Acquisition types

Throughout this chapter, the four types of consultant utilization have been explored based on the empirical research of this thesis. Additionally, resource bumps has been introduced in relation to the IS integration and it has been outlined that they do not necessarily occur sequentially, right after the integration as most literature suggests. The way that companies deal with IS integration related resource bumps has been discussed as well the impact of experience and scope of the integration when it comes to utilization of specific resource types. Based on these findings and the acquisitions examined throughout the study, six IS integration archetypes can be outlined.

	Type1	**Type2**	**Type3**
Type	Horizontal acquisition	Horizontal acquisition	Horizontal acquisition
Integration type	Sequential	Sequential	Delayed
Integration strategy	Absorption	Absorption	Absorption
IS integration strategy	IS Assimilation	Co-existence	Assimilation
Same type integration experience	High	High	High
Uncertainty	Low	Low	Medium
Technical challenge	Low	Low	Low
Consultant allocation	Direct	Indirect	Indirect

	Type4	**Type5**	**Type6**
Type	Horizontal acquisition	Horizontal merger	Horizontal acquisition
Integration type	Pool	None	None
Integration strategy	Breakthrough	Absorption	Add-on
IS integration strategy	Renewal	IS assimilation	None
Same type integration experience	None	None	High
Uncertainty	High	Medium	Low
Technical challenge	High	Medium	Low
Consultant allocation	Direct	Direct	None

Table 6-1 - Integration archetypes

The archetypes are based on individual acquisitions and not the companies of this study. The companies with numerous acquisitions have provided input to several IS integration archetypes. Similarly, several companies can have the same IS integration archetypes. Finally, for any acquisition the IS integration archetype can change as the result of changes in the corporate integration strategy.

The four types of consultant utilization can be allocated to these six archetypes to give an overview of when companies use consultants and what they use them for, in the acquisition types explored by this study.

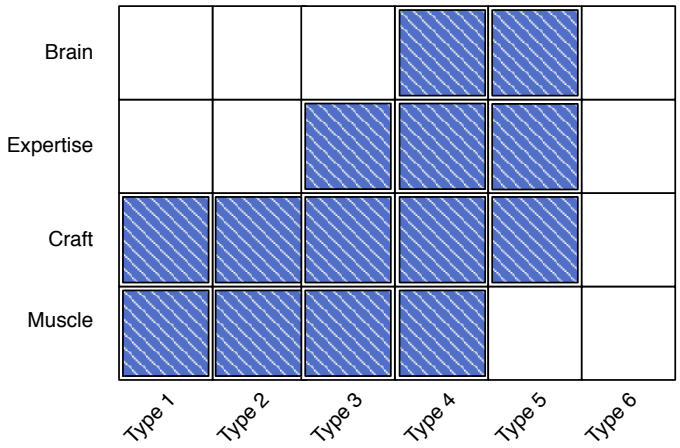


Figure 6-6 - Consultant use in IS integration archetypes

As mentioned previously, all the companies in this study used consultants allocated directly or indirectly to their post-acquisition IS integration projects. The figure gives an overview of the different integration types that the companies participating in this study has engaged in, and what types of consultants they use. The integration type can be considered as *when* companies use consultants, and the consultant types can be considered *how* companies use consultants.

Chapter 7
Conclusion and discussion

Throughout this thesis, the use of consultants for integration of information systems following mergers and acquisitions has been explored. A comprehensive cross-literature review has been conducted, leading to the introduction of four types of consultant use during PMI of IS. Through a theoretical framework proposed as part of this study, the use of consultants has been explored in relation to the acquisitions performed by four large manufacturing companies. The M&A activity, factors relating to the M&A acts and the use of consultants has been accounted for, for each of the companies and the aggregated findings has been presented. A thorough analysis of the findings, together with findings beyond the theoretical framework, have been introduced and discussed, leading to a new process perspective on the post-merger integration of IS. This last chapter will present the main findings of the thesis and examine them in the context of the extant knowledge body of the field. Limitations of the study will be discussed and suggestions for further research will be proposed.

7.1 Findings and contribution

This thesis contributes to the IS literature on mergers and acquisitions by taking a first step in exploring when and how acquirers use consultants in the post-merger integration of information systems. The study finds that companies use consultants as a natural part of the post-acquisition integration of IS, which is in accordance with previous findings (Freitag et al., 2010; Wirz & Lusti, 2004; Accenture, 2002). Therefore consultants are relevant to include from a research perspective, as consultants have impact on the outcome of the IS integration. This consideration is important to the organization on an IS level, but also on corporate level, as most of the expected synergies in M&A's are directly dependent on IS (Sarrazin & West, 2011). The research question that has been guiding this study is concerned with *when* and *how* companies use consultants in the post-acquisition integration of information systems. In the following the findings of this thesis are presented in this context, as well as the context of the extant literature thereby outlining the contribution of each finding. Consequently, the last section will make conclusions based on the findings, answering the research question.

7.1.1 Conceptual model of the post-acquisition integration

Based on the cross-literature review, a conceptual model for the IS integration was presented in Figure 4-2, pointing out that the integration process leading to the actual combination of two companies is performed by a team of resources. The team is normally considered to consist of internal resources (LaJoux, 1997), but as consultants are used for different purposes throughout the integration process (Meckl, 2003), they are part of the integration team who leads the two entities to the combined state.

Thereby, consultants are to be considered an integral part of the resources used, which should be taken into consideration in further research on the topic.

7.1.2 Four types of consultant use

Consultants are not used heterogeneously in the integration process, as they perform different tasks in different levels of the organization (Wirz & Lusti, 2004). Avoiding to distinguish between the role and the type of work that the consultants do in the integration is therefore inadequate. Based on a solid theoretical foundation and supported by empirical data, four types of consultant use have been outlined, with the company utilizing from consultants as the focal point. Adaption of the resource-based view provides a strong base to perceive consultants as either resources or capabilities (Grant, 1991), while making the distinction between supplementary or complementary use (Wernerfelt, 1984). The empirical study of M&A's performed by the case companies found support for each of the four types of consultant use. Despite the fact that the typologies are related to the company using consultants, characteristics related to the use and decision-making regarding each type has been discussed and the tasks performed by the different types have been presented. Altogether this makes a solid foundation for the use of consultants as *muscle*, *expertise*, *craft*, and *brain*, which fits the need for perceiving consultants as a natural part of post-acquisition IS integration.

7.1.3 The post-acquisition integration from a process view

The corporate as well as the IS integration can occur immediately after a merger or an acquisition. The extant M&A and IS literature concerned with integration seems to take this for granted (see, for example, Giacomazzi et al., 1997; Angwin, 2004; Tarasovich et al., 2008), as does the M&A phase models dominating the field, where post-merger integration occurs as an activity in the phase following the deal (Calipha et al., 2010; Henningsson, 2008; Meckl, 2003). Meanwhile, that does not reflect the way that the integration occurs, according to the empirical exploration of this study. While the integration process began immediately after the acquisition in some targets, the process was not initiated up to ten years after the acquisition in other targets. In Carlsberg, several targets were integrated at the same time, in one large project. This leads the introduction of three types of integration;

> *Sequential integration* explicates the approach assumed in the extant literature. Targets are integrated one at a time, following the acquisition.
>
> *Delayed integration* occurs when the integration process is not initiated until considerable amount of time after the deal. This type of integration was found in this study as the result of changes in corporate integration strategy.
>
> *Pooled integration* is performed when a company acquirers several targets, without initiating the integration of IS. At a later point, more than one targets are then integrated in one single integration project.

The integration types are closely related to corporate integration strategies (Saint-Onge & Chatzkel, 2009) and IS integration strategies (Henningsson, 2011a). The proposed

integration types adds to the IS integration strategies and accounts for changes in corporate or IS integration strategy.

7.1.4 Use of consultants to deal with the resource bump

The temporary post-acquisition integration of IS, whether it is sequential, delayed or pool integration, is a complex task (Accenture, 2002) that requires more than the usual level of resources in the two organizations combined (Freitag et al., 2010). This temporary, extraordinary demand for IT resources and capabilities is referred to as a *resource bump*. The size of the bump depends on the scope of the integration, thus the size of resource bumps affiliated with pooled integration or merger integration will normally be larger than of a serial acquirers integration of a relatively small target. This study finds that companies deal with the resource bump in two ways; either by down prioritizing internal IS projects to allocate resources to the integration, or by using consultants. In most cases, the company will not be in a position to reallocate sufficient resources, why consultants are part of all integration projects examined in this study.

Two approaches to the allocation of consultants have been identified, related to how companies use consultants to deal with the resource bump. *Direct allocation* occurs as consultants are allocated directly on the integration project, while *indirect allocation* happens when consultants are used to perform functions in the IS organization to relieve internal staff from their tasks, so they can be allocated to the integration project. The two allocation methods can be seen as a continuum for each of the four types of consultant use. The limited literature on consultants in PMI often assumes direct allocation (Papathanassis, 2003), while Freitag and colleagues (2010) touch upon the possibility for indirect allocation.

The resource bump as a way to view the integration provides a process view of PMI, leading to better understanding of how companies approach the task. Distinction between direct and indirect allocation shows how companies choose to deal with the resource bump.

7.1.5 Integration archetypes and consultant use

Based on the empirical data gathered, examined and analyzed, six integration archetypes have been outlined based on factors related to the M&A integration act. The different uses of consultants utilized by the companies have been allocated to each archetype. While theoretically there might be an infinite number of archetypes, only a limited number of archetypes will occur frequently in the organizations (Segars & Grover, 1999). The six archetypes presented as the result of this study are not expected to be exhaustive, but covers the integration types experienced throughout this study. Linking the integration archetypes with the types of consultant use gives an idea of when and how companies use consultants. This leads to a final conclusion.

7.2 Conclusion

This study has been guided by the following research question, outlined in chapter 1:

> *When do companies use consultants in the M&A integration of information systems, and how do they use them?*

The question has been explored through related literature as well as empirically. When and how consultants are being used can be seen according to six IS integration archetypes that have been outlined above, together with the utilization of four types of consultants. Consultants' role has been discussed on different levels of the organization at different points of the IS integration throughout the study. Based on these, and the findings and discussions above, the research question can be answered in two:

When companies use consultants in the post-acquisition integration of IS
Companies use consultants for the M&A integration to deal with the resource bump that occurs as the integration project is initiated. This occurs in either sequential, delayed or pooled integration projects.

How companies use consultants in the post-acquisition integration of IS
Consultants are used as muscle, expertise, craft and brain. They are allocated directly or indirectly to the integration projects, and can be used either to perform tasks or to help build capabilities within the organization.

7.2.1 Contribution

Due to the very limited extant literature concerned with consultants in the post-acquisition integration of IS, this study is explorative in its nature. The study shows that consultants are relevant to consider during the IS integration process. Furthermore, it initiates explication of the field, providing terms for the use of consultants as well as contributing with findings relevant to the broader academic topic of IS in M&A, of which the process view can be considered especially useful.

7.3 Limitations

Limitations to the generalizability of this study are relevant to consider. The study has explored the integrations performed by four companies, why the study is limited to the scope of these. Together the acquisitions performed by the companies' sum up providing a foundation of several acquisitions, but it is far from sufficient to make broad generalizations. Furthermore, all of the companies participating are private sector manufacturing companies. The findings might be different if public sector companies or NGO's had been explored.

The theoretical framework was proposed based on the extant literature. The factors proposed in the framework are related to the companies participating in the study,

while it might provide a better base for the research to investigate each single post-acquisition case individually, than from an aggregated view. The framework and thereby the empirical data gathering could have taken this into account.

Despite the contributions discussed in the previous section, the value delivered by this thesis can be considered limited, as the study does not suggest explicitly when consultants should be used and when they should not. Furthermore, the study does not in detail consider the relative distribution between the different types of consultant use. As this is an explorative study, the purpose has been to create a base for better understanding how consultants fit into the PMI of IS. This leads to suggestions for further research.

7.4 Suggestions for further research

This study opens up for further exploration of the use of consultants in the post-acquisition IS integration. The primary concern for this study has been to identify ways that companies use consultants in the process, while further research might be concerned with the value that consultants bring into the integration. Suggestions for further research include:

- Further testing of the four types of consultant use, in organizations with the same and with other criteria than this study.
- Further exploration of the resource bump in relation to the integration time and scope. This can be linked to the extant theories in IS integration strategies for M&A's.
- Examination of how companies deal with resource bump emerging from M&A integrations as well as from other factors. This study is focused on the use of consultants, while other studies might make supplementary contributions of other ways to deal with the resource bump.
- Studies of the implication of internal and external allocation and the impact on the integration outcome.
- Identification of additional IS integration archetypes and allocation of the four consultant types to these.
- Exploration of consultants' impact on the integration outcome. Potentially mapping the four types of consultants to the outcome.

As the IS integration is critical in achieving the planned synergies following mergers and acquisitions, the area in general calls for academic attention. Expanding the scope to include consultants provides a delimited contribution, but the field is still a blue ocean with a lot of potential for researchers to explore and for companies to benefit from.

Appendix

Appendix A. Consultancy websites searched

As part of the literature review a series of consultancy websites was searched for whitepapers and cases on post-merger IS integration. The websites searched includes:

Accenture	http://accenture.com
Boston Consulting Group	http://bcg.com http://bcgperspectives.com
Capgemini	http://capgemini.com
Deloitte	http://deloitte.com
IBM	http://ibm.com
KPMG	http://kpmg.com
McKinsey	http://mckinsey.com http://mckinseyquarterly.com
PA Consulting	http://paconsulting.com
PricewaterhouseCoopers	http://pwc.com
Tata Consultancy Services	http://tcs.com

Appendix B. Introduction to the study

Post-acquisition Integration of Information Systems

KEY ATTRIBUTES OF THESIS PROJECT

Copenhagen Business School
HANDELSHØJSKOLEN

Christian Øhrgaard
Copenhagen Business School

Abstract

Acquisitions are increasingly becoming a strategic means for companies to create value through synergies such as expansion and improved efficiency. In most cases though, companies fail to achieve the synergies as expected. Due to the direct link between post-acquisition integration success and performance, as well as IT as a key driver of synergies in M&A's, the post-acquisition IS integration becomes critical in achieving success. Some companies are very efficient in this process, while other companies are not. Common to all is that the post-acquisition IS integration process is a complex task that requires attention, competencies and expertise. The research literature on the topic explores whether it is possible for a serial acquiring company to obtain M&A integration capabilities based on its experience, and thus increase the rate of success. Since many companies use external capabilities such as consultants in this process, isolation of the organizational capabilities provides a distorted view. Despite companies' acknowledgement of consultants' capabilities and effectiveness in the post-acquisition integration process, the use of consultants is still a black hole in the M&A research literature. This thesis therefore expands the traditional scope by exploring the role of consultants in the post-acquisition IS integration process. Hereby, the purpose of this thesis is to offer insight into how companies can improve their M&A post-integration process based on experience from both acquiring companies as well as the consultants who work with them in the integration phase.

Keywords: Acquisitions, experience, Information Technology, IS integration, IT consultants, M&A, organizational cababilities, Theory Development

1

Project scope

This research project is written as a Master's thesis project on the MSc in Business Administration and Information Systems programme, Cand.merc.(IT), on Copenhagen Business School (CBS). The thesis is part of a collaboration project on the role of IT in mergers and acquisitions, with researchers participating from institutions such as CBS, Australian School of Business, TU München og Massachusetts Institute of Technology (MIT). The thesis deadline is in August 2011.

Purpose

The purpose of this project is to look into how companies can successfully carry out the IS integration after the acquisition of a business unit. As a part of this, the project will take a look into the, until now, unexplored topic that the use of external experience in post-acquisition integration is, and based on this, to give a first, limited contribution to the academic knowledge on the topic. As the project is written as an MSc thesis, an additional purpose of the project is obviously to turn the findings and theory development into a dissertation with a good result.

Methodology

The empirical knowledge of the study will be based on expert interviews held with high-level management and operational level representatives from top companies in Denmark with substantial acquisition experience. Additionally, interviews with consultants from the most renowned consulting companies will be a key-element in getting insight in their role in the process, in the application experience as well as approach to the integration task. The interviews will be codified to key themes iteratively, which will make the base for the findings of this study.

Call for experts

Ideally, one or two employees with insights in the above topics from Norican Group will be interviewed on their respective experiences on M&A integration. The interviews will be of 30-60 minute duration and will be conducted either face to face or via telephone, based on each of the employees schedule and location. This will be

greatly appreciated, and hopefully both parties will learn something from the experience.

Topic introduction

A brief introduction to the key elements of the topic and the project are given below.

1. M&A's and post-acquisition integration

Corporations are increasingly using acquisitions as strategic means to create value through synergies such as efficiency gains, resource redeployment, economics of scale and increased market power. In 2010, almost 30,000 mergers and acquisitions were completed worldwide, at a total transaction value of more than $1.83 trillion (Thomson-Reuters 2010). Statistically, most of these acquisitions will destroy, rather than create, value for the acquiring company (Kengelbach, et al. 2011). Those companies, who do succeed in creating value, are the companies that accomplish to achieve positive synergies, which most often happens based on effective post-acquisition integration (Barkema og Schijven 2008). Especially the post-acquisition integration of IT is critical for success, as 50 to 60 percent of the initiatives that drive the value creating synergies are directly dependent hereof (Henningsson 2011, Sarrazin og West 2011).

2. The influence of experience

Companies who acquire several targets during a short timespan are considered serial acquirers. These companies are anticipated to be in a better position to realize the expected synergies of their acquisitions due to their post-acquisition integration experience, and hence capabilities within this complex field. Despite this, on average single acquirers outperform serial acquirers on returns, while a small group of serial acquirers are in a class of their own when it comes to synergy realization (Kengelbach, et al. 2011). A major reason for the performance diversity within the acquiring companies can be found in the capabilities that the organization is utilizing from in both the target selection phase, the due diligence process and the post-acquisition integration phase.

3. The use of external experience

A company's experience is usually used to explain its capabilities within the post-acquisition integration process. The research literature perceives the organization and it's dealing with the integration as an isolated entity. Meanwhile, many companies use external experience, such as consultants in the M&A transition to help facilitate, manage or execute the complex process of a post-acquisition IS integration, why it is relevant to take the contributions from the consultants into the account when the performance of a post-acquisition IS integration is evaluated.

4. Using external experience in post-acquisition IS integration

The purpose of this project is to look into how companies can successfully carry out the IS integration after the acquisition of a business unit. It will study how the target type, the integration strategy and the experience of the integration teams affect the outcome of the integration. To enable this, the thesis will explore the use of consultants in the IS integration phase of the M&A process, which until now represents a black hole in the research literature. Due to the fact that post-acquisition IS integration isn't a everyday activity for most companies, it will be examined how it is possible for companies to use and manage external capabilities on this complex subject where the company often doesn't have the required resources or capabilities to successfully carry out the integration. Furthermore, the characteristics of M&A projects with a high involvement of external experts, and the context in which they are being used will be investigated. Based on the characteristics of a given acquisition and the capabilities of the related focal company, the thesis will make a delimited contribution in the area of:

- When consultants are best put to use in the post-acquisition IS integration process.
- How the company can successfully select the type of external experience needed as well as manage the process.
- What, if anything, puts the consulting companies in the position to be a cohesive element in the post-acquisition IS integration.

Appendix C. Key informants

Name	Company	Function	**Ref**
Niels Molzen	Danisco	CIO	A1
Kenneth Schmidt	Carlsberg	CIO	B1
Bo Jørgensen	Carlsberg	IT Asset Management	B2
Karsten Sørensen	Grundfos	CIO	C1
Jens Hartmann	Grundfos	IT Manager	C2
Mette Rubak Kaarsbo	Norican Group	Program Manager	D1

Figure 7-1 - Interview participants

Appendix D. Interview guide

Interview guide

Introduction [Research project, thesis, problem area]

BASE FOR THE POST-ACQUISITION IS INTEGRATION

Company

- Experience with target IS integration
- Complexity of target IS integration – compared with other tasks
- Resource requirement of target IS integration, ceteris paribus and compared with other tasks
- Obtaining additional required resources [consultants, hires – preference?]
- Key focus during the PMI [fast integration, ongoing operation, etc.]
- Motives for acquisitions

Target attributes – historically, generalized – description of the latest targets

- Vertical / horizontal integration
- Range of sizes
- IS complexity
- Status of current integration projects

THE POST-ACQUISITION IS INTEGRATION PROCESS

- Involvement of IT leaders in the M&A process [target selection, due diligence, etc.]
- Implications for early involvement of IT leaders
- Different stages of the integration [planning, integration, assessment, etc.]
- Responsibility structure [title vs. task or process – consultants?]

M&A framework

- Explicit framework for performing M&A's [Corporate-, IT level, etc.]
- Foundation for framework [Industry best practices, experience, consultants]

Integration planning

- Preferred target IS integration strategy [assimilation, co-existence, etc?]
- Subsequent single-target integration or pool-integration strategy?
- Consultant involvement in the planning process

Integration phase

- Key elements and success factors
- Challenges, risks and mitigation
- Major constraints [time, budget, internal resources, experience, etc.]
- Resources or competences required [analysts, planning, PM's IS modification, IS migration, strategy]
- Consultant involvement in the integration phase

THE USE OF CONSULTANTS

- Main motivation for using consultants in PMI
- Primary role of external consultants [topic expert, generalist, PM, support, strategy, implementers etc.]
- Perception of consultants affiliation [considered part of company, external]
- Resource governance and consultants [CIO, PM, SBU decides the use?]

Consultants tasks

- Guideline for the use of consultants [in general, in IT, PMI, etc?]
- Tasks of the target IS integration where consultants have been involved
  - IT integration strategy definition
  - Integration planning
  - Integration process management – PM
  - Integration execution – how?
  - Integration outcome or performance assessment
- Best use of consultants
  - Strategy vs. PM vs. muscle
  - Sub processes [better in execution than analysis, etc.]
- Use of consultants based on acquisition type
  - Difference based on vertical vs. horizontal integration
  - Difference based on large vs. small target, etc.

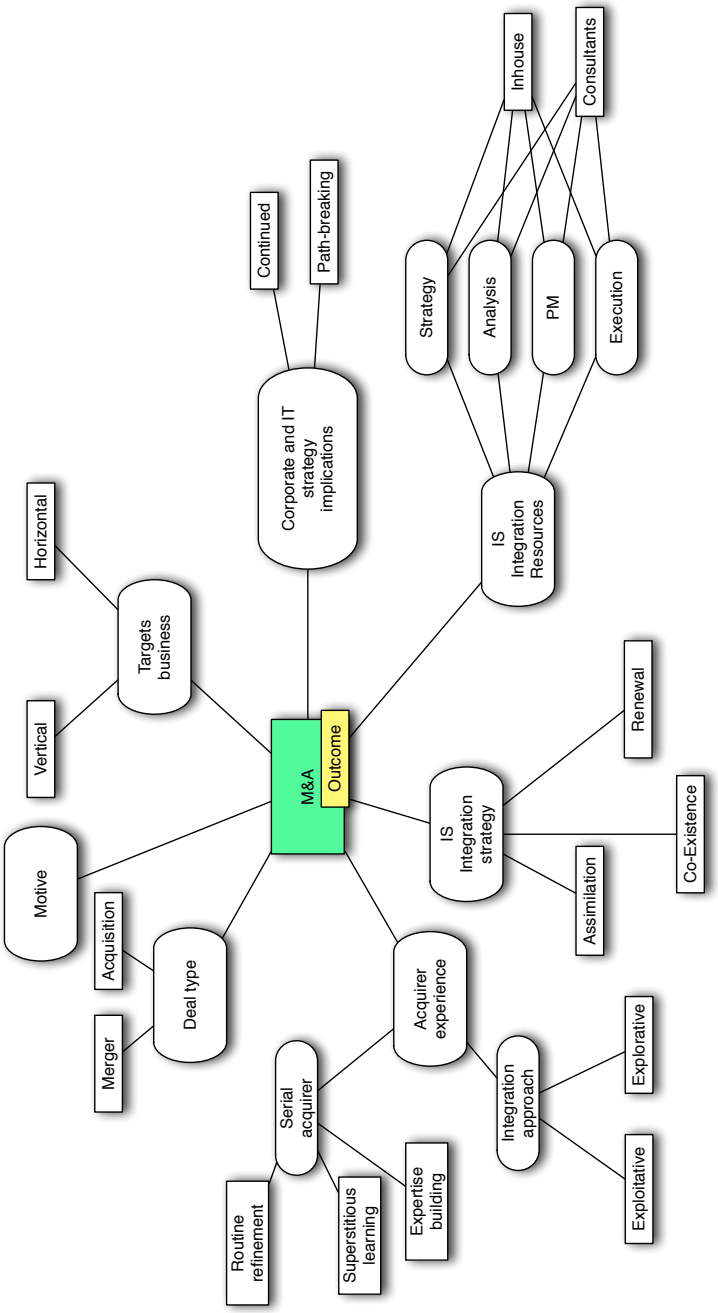
Late involvement

- Integration projects with late involvement of consultants [Project off track]
  - Competencies used, role of consultants [strategy, PM, execution, etc.]
- Impact on involvement of consultants on subsequent PMI's

LEARNING FROM EXPERIENCE

- Routines based on PMI experience
- Routines impact on estimates and planning
- Overly optimistic behavior based on experience
- Explication, codification or formalization of experience [manual, systems]
- Use of consultants affected by PMI experience
  - Used more or less frequently
  - Different purposes than initially – new tasks?

Appendix E. Interview mind map



Appendix F. Secondary data

Company	Document	Type	Reference
Carlsberg	2010 Annual Report Carlsberg A/S	Annual report	Carlsberg (2011)
Carlsberg	List of acquisitions	Database extract	
Danisco	Danisco Acquirers Genencor International for $44 Million	Press release	
Danisco	Mutual Benefit	Press release	
Danisco	Danisco acquirers Rhodia food ingredients	Press release	
Danisco	Annual Report 2009/10	Annual report	Danisco (2010)
Danisco	DuPont and Danisco	Press release	DuPont (2011a)
Danisco	Dupont Succesfully Completes Tender Offer for Danisco	Press release	DuPont (2011b)
Danisco	List of acquisitions	Database extract	
Grundfos	Grundfos Assist – Selection made easy	Press release	Grundfos (2010)
Grundfos	Grundfos transforms global pump business with SAP and IBM	Press release	
Grundfos	Group Annual Report 2010	Annual report	Grundfos (2011)
Grundfos	List of acquisitions	Database extract	
Norican Group	Norican Holdings ApS	Annual report	MidEuropa Partners (2011)
Norican Group	The Norican Group	Report	

Appendix G. Codification categories

Main categories and parameters for initial coding

Acquisitions
Company

M&A type
Merger
Acquisition

M&A Experience
Same type
Different type
No experience

Corporate integration strategy
Add-on
Absorption
Best of both
Breakthrough

IS integration strategy
Assimilation
Co-Existence
Renewal

IS Landscape
Infrastructure
ERP

IT Organization
Resources
Capabilities

Outsourcing

Consultant tasks
Implementation
Planning
Project management
Strategy

Consultant use
Muscle
Expertise
Craft
Brain

Consultant locatition
Local
Low cost market
Global (non low cost)

Appendix H. Hierarchical structure

Capabilities occur on different levels of the organization, and can be more or less specialized.

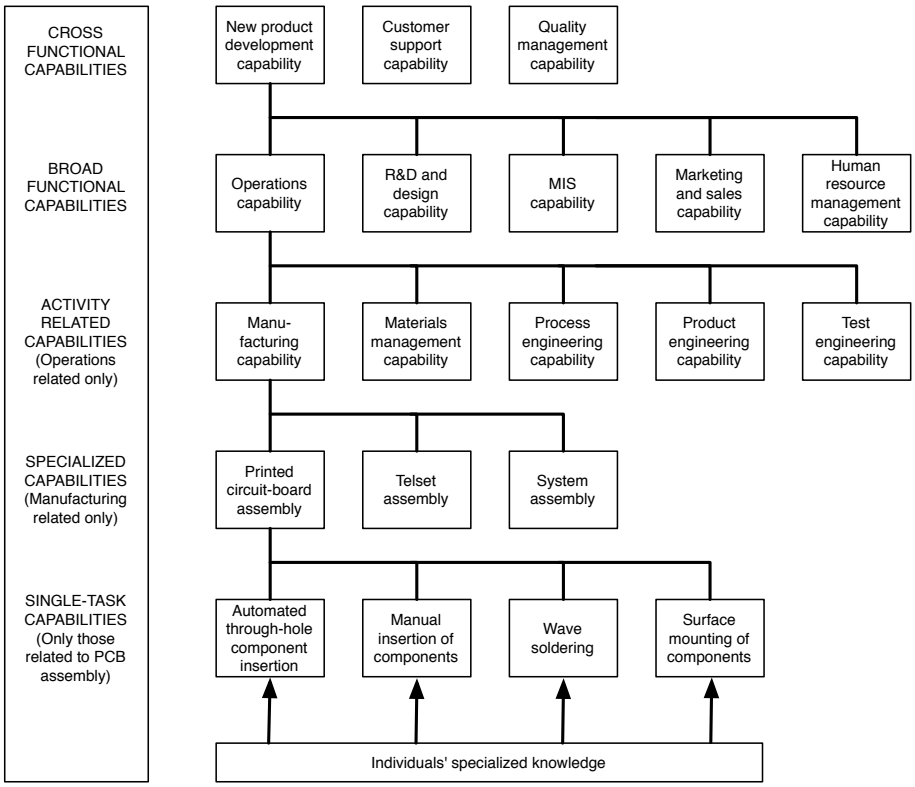


Figure 7-2 - The hierarchical nature of capabilities: A manufacturer of telecom equipment (Grant, 2005)

Appendix I. IS resources and capabilities

Wade and Hulland (2004) defines a set of IS resource typologies based on an extensive literature review. In this context, outside-in capabilities are externally oriented, with resources focusing on external relationships or understanding competitors. Inside-out capabilities are internally focused, deployed in the company, and act as a response to requirements to keep up with the market, or opportunities to surpass the performance of IT in the market. Spanning capabilities consist of a mix of the two.

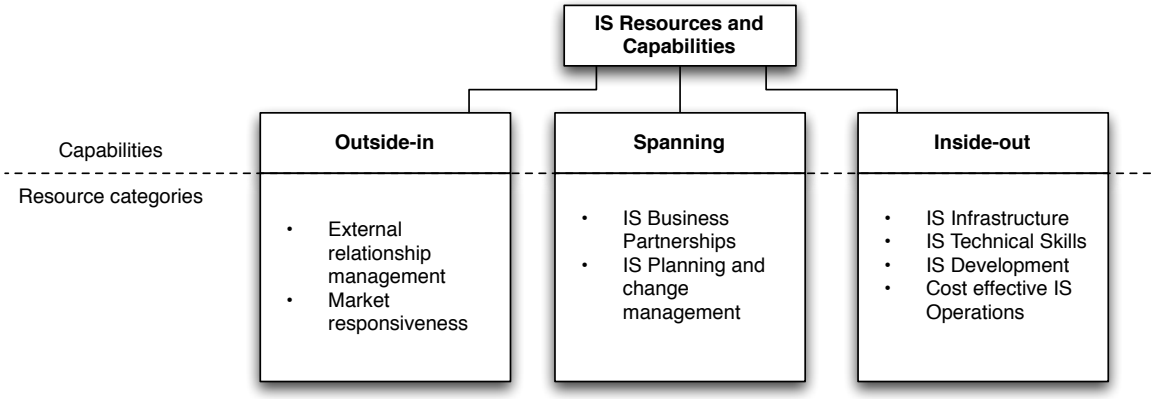


Figure 7-3 - A typology of IS resources and capabilities (Wade & Hulland, 2004)

The IS resources and capabilities identified by Wade and Hulland in their literature review are presented below to give insight in what is considered as resources and capabilities in the IS literature.

Resource	Source
Manage external relationships	Manage external linkages
	Manage stakeholder relationships
	Strong community networks
	Contract facilitation
	Informed buying
	Vendor development
	Contract monitoring
	Coordination of buyers and suppliers
	Customer service
Market responsiveness	Fast delivery
	Ability to act quickly
	Increased market responsiveness
	Responsiveness
	Fast product life cycle
	Capacity to frequently update information
	Strategic flexibility
	Flexible IT systems
	Organizational flexibility

IS Business partnerships (manage internal relationships)	Integrate IT and business processes Capacity to understand the effect of IT on other business areas IT/business partnerships Aligned IT planning Business/IT strategic thinking IT/Business synergy IT assimilation Relationship building IT/Strategy integration
IS planning and change management	IT management skills Business understanding Problem solving orientation Business systems thinking Capacity to manage IT change Information management practices Manage architectures/standards Architecture planning
IS infrastructure	IT infrastructure Proprietary technology Hard infrastructure Soft infrastructure Storage and transmission assets Information processing capacity Technology asset Information technology practuces
IS technical skills	Technical IT skills Knowledge assets Using knowledge assets
IS development	Technical innovation Experimentation with new technology Capacity to develop services that utilize interactive multimedia Alertness
Cost effective IS operations	Cost effective operations and support Getting IT to function Enhanced product quality

Figure 7-4 - A categorization of IS resources (Wade & Hulland, 2004)

Appendix J. USB Stick

The attached USB stick contains files relevant to this thesis. An overview of the contents is listed below.

/Øhrgaard 2011.pdf	The document at hand
/Interview transcripts/	Transcripts of the interviews referred to in this thesis
/Interview files/	Audio files of the interviews referred to in this thesis
/Secondary literature/	Literature listed as secondary literature in chapter 2

Appendix K. Word count

This thesis consists of 181.342 chars. These include 174.925 in the text without the content of tables, 11 tables each representing 700 chars and 15 figures each representing 700 chars.

Characters in text	174.925
Characters in tables	(11.783)
Tables	7700
Figures	10500
Total	181.342
	79,7 pages

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