



**SCHOOL OF ECONOMICS
AND MANAGEMENT**
Lund University

Department of Informatics

A Business process management approach to ERP implementation

A study of ERP implementation in the light of the third wave of Process Management

Master Thesis in Informatics, 15hp
Submitted June, 2008

Author:
Niklas Idorn

Supervisor:
Hans Lundin

Examiners:
Kjell-Åke Holmberg
Erik Wallin

Foreword

The author would like to thank Annica Norling at CapGemini and Lars Kristoffersson for their participation in the study. A “thank you” also goes out to supervisors Hans Lundin and Mia Sassén for their help in guiding the thesis in the right direction. The author has also appreciated the feedback received along the way from fellow students at supervising sessions.

Lund, June 2008

Niklas Idorn

A Business Process Management Approach to ERP Implementation

A study of ERP implementation in the light of the third wave of Process Management

© Niklas Idorn

Department of Informatics, Lund University

Master's thesis presented June 2008

Supervisor: Hans Lundin

Examiners: Kjell-Åke Holmberg & Erik Wallin

Original Language: English

Size: 74 pages

Abstract

One of the most stated reasons for ERP failure is that the organization failed to recognise the impact the system would have on business processes. A possible solution to this could be to use an approach focusing on process change when implementing ERP systems. Therefore this study investigates the possibilities of using Business Process Management (BPM) when implementing ERP systems. The focus lies on the phases and activities in the two concepts as well as presumably influencing factors like manner of payment, project organisation structure and level of customization. The data collection was conducted in the form of interviews with respondents from two big consultancy firms in Sweden that conducts ERP implementations. It was concluded that the first four phases of BPM fits the frameworks of ERP implementation. The main enabling activity was found to be process modelling and it was also concluded that the structure of implementation projects today might negatively affect an integration of BPM and ERP implementation. The conclusions relied on theories about BPM and both theoretical frameworks and empirical data about ERP implementation.

Keywords: BPM, Business Process Management, Customization, ERP, Enterprise Resource planning, Fixed Price Implementation, Implementation, Process Change

Table of Contents

1 Introduction	- 1 -
1.1 Background	- 1 -
1.2 Problem Area	- 2 -
1.3 Problem Discussion	- 3 -
1.4 Research Question	- 4 -
1.5 Purpose	- 4 -
1.6 Propositions	- 4 -
1.7 Delimitations	- 5 -
1.8 Concepts	- 6 -
1.9 Thesis Outline	- 7 -
2 ERP Implementation	- 8 -
2.1 Impact of ERP on Business Processes	- 8 -
2.2 Implementation frameworks	- 9 -
2.2.1 Prisoner Escape Framework	- 9 -
2.2.2 Project Phase Model	- 10 -
2.2.3 ERP Experience Cycle	- 12 -
2.3 Customization and extent of Process Management	- 13 -
3 Business Process Management	- 15 -
3.1 BPM life cycle	- 16 -
3.2 IT Elements in BPM	- 18 -
3.3 Process Modelling	- 18 -
3.3.1 Business Process Markup Language	- 19 -
4 Method	- 20 -
4.1 Method Motivation	- 20 -
4.2 Creating the Theoretical Framework	- 21 -
4.3 Company and Respondent Selection	- 22 -
4.4 Interviews and Transcription	- 23 -
4.5 Analysis	- 24 -
4.6 Chain of Evidence	- 25 -
4.7 Research Quality	- 26 -
4.8 Research Ethics	- 27 -
5 CapGemini	- 29 -
5.1 Respondent and Company Presentation	- 29 -
5.2 Implementation methodology (P1)	- 29 -
5.3 Fixed Price Implementation (P3)	- 31 -
5.4 Customization (P2)	- 33 -
5.5 Reasons for adopting ERP	- 34 -
5.6 Resistance	- 35 -
6 Company B	- 36 -
6.1 Respondent and Company Presentation	- 36 -
6.2 Implementation Methodology (P1)	- 36 -
6.3 Project Structure and Payment (P3)	- 38 -
6.4 Customization (P2)	- 39 -
6.5 Process Management Functionality	- 39 -
6.6 Resistance	- 40 -
7 Discussion	- 41 -
8 Conclusions	- 46 -
8.1 Practical Implications	- 47 -
8.2 Future Research	- 47 -
Appendix 1 – Interview Guide CapGemini	- 48 -
Appendix 2 – Capgemini Transcript	- 49 -
Appendix 3 – Interview Guide Company B	- 58 -
Appendix 4 – Company B Transcript	- 59 -
Appendix 5 – Confidentiality agreement	- 66 -
References	- 67 -

List of figures

Figure 1.1 Definitions of thesis concepts	6
Figure 1.2 Thesis Outline	7
Figure 2.1 Summary of phases and activities in The Prisoner Escape Framework.....	9
Figure 2.2 Summary of phases and activities in PPM.....	11
Figure 2.3 Activities in project phases	11
Figure 2.4 Summary of phases and activities in ERP Experience cycle.....	12
Figure 3.1 Phases and activities in BPM.....	16
Figure 4.1 Categories for meaning generation.....	25
Figure 4.2 Chain of Evidence	25
Figure 5.1 Phases and activities in the CapGemini methodology.....	31
Figure 6.1 Implementation model Company B.....	36
Figure 6.2 Summary of activities in Company B's methodology.....	38
Figure 7.1 Design activities in BPM and ERP implementation.....	42

1 Introduction

The introduction starts with a background describing the link between ERP implementation and process change. This background narrows down the scope to the problem area which describes the specific topics and concepts included in the thesis. The problem discussion that then follows motivates why the problem area is of interest. Following this the research question is stated along with the purpose of the thesis. The chapter is concluded with an explanation of the propositions that guides the study and a description of the delimitations.

1.1 Background

In the 1990s more and more business started to recognize the need for a common platform for communication and integration between business units. Based on Material Requirement Planning (MRP) and Manufacturing Resource Planning (MRP II), Enterprise Resource Planning (ERP) became one of the most important developments in the corporate use of information technology (Al-Mashiri, Al-Mudimigh & Zairi, 2003; Somers & Nelson, 2004). It became a replacement for the old legacy systems and the many integration efforts between them that existed. With time it also became a tool for integration with suppliers and customers as well as a source of competitive advantage. The systems promised benefits in supply chain management, shipping and receiving, inventory management, production planning, accounting, Human Resource Management (HRM) amongst others (Gefen & Ragowsky, 2005). An ERP system also provides an organizational overview based on real-time data, thus giving managers up to date data that aids them in decision making (Davenport, Harris & Cantrell, 2005).

The ERP research scene has been flooded by reports and articles stating that a majority of the implementations have failed to deliver the desired benefits (e.g. Zviran, Pliskin & Levin, 2005; Aladwani, 2001). The reasons has been many; too tight schedule, requirements not sufficiently specified, incompatible metrics used, lack of communication between consultants and organization representatives, resistance from users or simply that the chosen ERP system not at all fits the organization. Therefore, researchers have recently been occupied with conducting research in how all these pitfalls can be avoided, by listing critical success factors (CFSs) (Nah, Lau & Kuang, 2001), specifying which metrics to use (Gefen & Ragowsky, 2005) or supplying more frameworks explaining what an implementation actually consists of (Ross and Vitale, 2000; Parr & Shanks, 2000a; Markus, Axline, Petrie & Tanis, 2000).

The author of the thesis has previously conducted research with ERP implementations as main focus. His bachelor's thesis in Business Administration and Leadership investigated the resistance from users in ERP implementations. Different types of resistance were categorised and what time during the implementation they occurred were determined. One conclusion was that there is always resistance to be found in ERP implementations, but it's usually not resistance to the system per se but rather resistance to the process change that accompanies it (Andersson, Gillstedt & Idorn, 2006). One of these changes is to the way the company does business, how the business processes are affected by the system. After investigating the symptom in form of resistance in the bachelor's thesis the author now focuses on the cause, the change to business processes an ERP implementations brings. The manner in which this is done is a diagnosis of the problem and an exploration of the possibilities of using a new Process Management approach as cure.

1.2 Problem Area

One thing that distinguishes ERP systems from “traditionally” developed systems is that they come with a kind of mould of how the processes in a company should be shaped. Instead of making a system completely adapted to the company’s processes, an ERP system offers a set of processes for the organization to follow (Somers & Nelson, 2003). While the main job of the system is to improve the flow of information in an organization, it’s inevitable that the business processes are affected as well (Ross & Vitale, 2000). With this in mind, an ERP implementation often means a big change in how a company works and opens up new ways of doing business. In fact, using an ERP as a solution to solve operational problems such as ineffective business processes is frequently stated as motivation for the implementation (Parr & Shanks, 2000b). Yukl (2006) states that in all kinds of project that brings change to an organization, resistance from employees is inevitable.

Subsequently, this is also true for ERP implementations and is according to many researchers (e.g. Waddel & Sohal, 1998) said to be one of the main reasons for failure with ERP. Despite that this link between ERP implementation and process change is well known and process change often is stated as a motivation, little is done to prepare the future users for the change. The solution to this problem sounds trivial; Combine an ERP implementation with an approach focusing on process change. That way the previously neglected area of the impact on business processes will get highlighted in order to reduce the extent of resistance. It’s important to note that the resistance to change is seen as the effect and the negative sides of process change as the cause. The thesis sets out to investigate the possibilities for a cure against the disease, not its symptoms.

Since it’s established that there are strong linkages between ERP implementation and process change (e.g. Shang & Seddon, 2007; Aladwani, 2001), there should also be a possibility to combine an approach focused on process redesign with an ERP implementation. Looking at the nature of the change, an ERP implementation means a rather radical and rapid change during a small time span. Therefore, Business Process Reengineering (BPR) introduced in the early 90’s seems like the perfect candidate. Somers and Nelson (2003) claims that BPR approaches to ERP implementation have resulted in the organization enjoying a competitive advantage. Huq and Martin (2006) categorize three approaches to BPR, where ERP-driven BPR is stated to be very effective from a process management standpoint. This is due to the fact that before adopting an ERP it’s inevitable that the organization thoroughly examines the current state of the business and how it really works in order to find a vendor suitable for them. This introspective analysis makes the processes transparent and any actions taken in terms of process redesign, reengineering or change can be done with greater control. However, BPR has been criticized for not providing the opportunities for businesses to be agile and be able to respond quickly to changes in the environment and increased competition (Smith & Fingar, 2007). One of the pioneers of BPR, Thomas Davenport (Davenport, 1998; Davenport, et al., 2005) has also along with others criticized the approach for excluding the human perspective.

The connection between an approach focusing on process change and Information Technology is not a new one. The process re-engineering methodology presented by Guha, Kettinger and Teng (1993) includes steps that advocate the identification, selection and development/installation of IT solutions that will aid the process reengineering. While projects or general approaches launched to change processes have used IT as a helping tool, the same is not true if we let the concepts swap places. IT projects have not used process

change approaches enough to address the changes that inevitably follow, with resistance to the change as a result. ERP systems are of a nature that requires to be backed up strategic thinking since it affects all parts of an organization (Ross & Vitale, 2000). It is also the choice of IT structure from a growing number of companies, making it an important subject.

Smith & Fingar (2007) tightly couples ERP with BPR and claims that an implementation in fact means a one-shot process change. They say that the second wave of Process Management already has been ridden and not many surfers were left standing on their board when reaching shore. “Even with document-centred workflow added to ERP, such systems only took up discrete roles as participants in processes; rarely did they provide business management control over the processes” (Smith & Fingar, 2007 p. 18). A successor to BPR is Business Process Management (BPM), thoroughly described by for example Smith and Fingar (2007) and by Van der Aalst, Ter Hofstede and Weske (2003). BPM takes a softer approach to process change and instead of being rapid and radical the change is seen as an evolutionary procedure. The third wave is said to be here in the form of BPM with a focus on evolutionary change, collaboration and with the goal to give the control over IT back to the business people (Smith & Fingar, 2007). ERP is said to be old news and the next generation of technology is built upon the platform of Business Process Management Systems (BPMS). Business processes shall no longer be buried in old systems or moulded in an ERP; they shall become the centre of attention in the business of tomorrow (Smith & Fingar, 2007). BPM also advocate a focus on change of business processes rather than creation of business processes to fit the changing nature of today’s business.

1.3 Problem Discussion

Reading about Smith and Fingar’s (2007) view on ERP and BPR makes it a riddle how ERP systems can be so common today. If it’s clear that ERP doesn’t suit the businesses of today, it seems strange that so many companies are spending millions on it. We have to assume that ERP after all provide benefits for a company since the use and adoption of ERP is widespread. The critique put forward by Smith and Fingar (2007) that ERP systems anchors the business processes in concrete is to an extent supported by a lot of authors (e.g. Ross & Vitale, 2000; Shang & Seddon, 2007). While ERP workflow modules provide some degree of flexibility for later process change, it’s in the actual implementation that any modifications to the system and subsequently the business processes are made. This makes the implementation project the focus of this thesis rather than the ERP system itself. Other authors have tended to do the same since most articles regarding ERP deal with the implementation and the problems surrounding it.

While BPM comes with associated software, BPMS, it also provides a new paradigm of how things should be done. The BPMS is seen as an enabler and platform but little research has been conducted on the possibilities of existing technology doing the same job. Maybe there is some way to take the assumptions, ideas, tools, activities and guidelines from BPM and incorporate them into an ERP implementation. After all, process change is often stated as one of the biggest issues that cause problems in an implementation so investigating if a BPM approach could help in resolving that is indeed interesting.

To emphasize the importance of Process Management, the theoretical framework includes a heavily referenced part on the significance of process focus in ERP implementations. To reach conclusions about if a BPM approach can be used in ERP implementations, existing frameworks of ERP implementations are paired up with empirical data of how it’s done in

practise. The empirical data is collected from an interview study of two large firms that conducts implementations of the ERP systems. The concept of BPM is exclusively investigated by the use of scientific articles and books on the subject. Real world cases are rare and hard to find due to it being a new concept, with perhaps the most prominent book published in 2007 (Smith & Fingar, 2007). Furthermore, that book contains mostly abstract ideas that are yet to be fully adopted by real businesses. Phases and activities in the different ERP implementation models are described and the elements that make it feasible or not to feasible align the two approaches are the subject of analysis and discussion. The hopes are that the thesis can be used as a foundation for the creation of a new approach to ERP implementation. A new method like that would emphasise process change in order for members of the organization to adopt the process changes without friction. A BPM approach to ERP implementation could possibly also lead to more agility in order to respond to changes in whatever business the adopter is active in.

1.4 Research Question

What possibilities exist to integrate Business Process Management and ERP implementation?

1.5 Purpose

The purpose of the thesis is to describe the possibilities to include methods and ideas from BPM in an ERP implementation, with special attention to how the factors of project payment and level of customization can influence the integration.

1.6 Propositions

There are certain factors that beforehand were thought to have influence on the possibility of using a BPM approach to ERP implementation. These factors are given extra attention throughout the thesis since variance in these is believed to impact the outcome. However, all factors encountered in the theoretical framework or the empirical data will be taken into account depending on their suitability to explain a possible match between ERP and BPM. The first factor is the phases and activities in an ERP implementation that may or may not fit the equivalent in BPM. The second factor concerns the level of customization of the ERP, which subsequently governs the extent of Process Management needed. The third factor concerns the way projects are being paid and administered for, which is believed to affect the degree focus on processes. The propositions should be understood as a guide for the data collection and shaping of the theoretical framework. To clarify, they can be expressed as “The (Proposition) affects the possibilities of using a BPM approach to ERP implementation”. The conclusions then answer the research question by providing answers to whether these propositions are true or not and in what way they might affect the integration.

Phases and Activities (P1)

In order to see whether the activities and ideas proposed by BPM could work in an ERP implementation, there is a need to establish what an implementation consists of. Determining the different phases and what different activities they consist of means that current similarities can be spotted together with possibilities for integration of the two concepts. The conclusions of the thesis primarily rest upon the ERP frameworks described in the literature, BPM theories and empirical data of how ERP implementations are conducted in practise.

Level of Customization (P2)

Since BPM is an approach focusing on processes and process change it becomes natural to also view the ERP implementations from a process view. The way this is done is to examine

to what extent the in-built process proposal is being accepted by companies. Adopting it fully can be seen as a complete change of the own business processes, while configuring the ERP to better match the current ones involves changing both system and business processes. The advice from consultants is in the literature said to be clear, as illustrated by a consultant when saying that the second commandment for SAP implementation is: “Thou shalt not change SAP” (Parr & Shanks, 2000b, p. 7).

Manner of payment (P3)

A factor that has been neglected in the research concerning ERP implementations are the way projects are being administered and paid for. There is rarely a distinction between whether the business itself runs the project and hires external personnel or if the implementation is bought at a fixed price from a consultant company. The differences have not been clearly examined and in fact, most of the literature seems to take for granted that the project is done in a manner where consultants and business employee work together in a symbiotic manner. A fixed price implementation is believed to be stricter, since the consultant company will then do what they can to make sure they are done in time and the internal cost doesn't exceed what the client has paid. Fixed price implementations are also believed to have clearly divided tasks for the consultant company in the business, meaning that it can be seen as two project teams rather than one.

1.7 Delimitations

There are many topics that borderline this thesis and the combination of BPM and ERP. The importance of Change Management is perhaps the most obvious and has been stated as a CSF in multiple articles on ERP implementation (e.g. Aladwani, 2001; Somers & Nelson, 2004). While a part of the purpose of the thesis is to research the possibilities to make ERP implementations impact on business processes less dramatic, Change management is merely seen as a complement. Change management is in itself a managerial strategy that can consist of phases, activities and standpoints. Incorporating this would create a triangular problem area that is beyond the scope of the thesis. Change Management can certainly be a part of another strategic approach such as BPM but the organizational focus in form of culture, communication and organizational well-being it has is not the aim of this thesis. Furthermore, Change management is still a managerial strategy in its own right and one of those is already in the thesis leaving no room for another. However, since Change management is frequently stated as important it is not excluded from the study, but is handled just as any other factor.

Since it's not meant to be a technical thesis, there is little focus on actual ERP systems and their functionality, interface or technical architecture. The only exception to this is the workflow module or equivalent available in most ERP systems since workflow management was the first step in the direction towards BPM according to Smith & Fingar (2007) and is therefore not be excluded from the study. But even this is discussed in terms of process change and not the technical issues of exactly how it's integrated with other modules and so on. The main reason to the lack of focus on actual systems is that the bulk of the problems are to be found when it is implemented. Furthermore, it's when the system gets implemented that the processes change, thus becoming the natural topic associated with ERP to investigate.

An implementation can be seen from several viewpoints, depending on if you're a part of the business or the consultant company and if you're a future user or a manager. The author consciously doesn't take any of these viewpoints since the same factors that separate them are used to determine the fit between BPM and ERP implementation. These factors relates to the

propositions and includes process focus customization, project form and project activities. By not taking a specific viewpoint the author is aware that the resulting image of an implementation may not be fully consistent with any particular viewpoint. However, getting a general view of an implementation profoundly eases the comparison with BPM, resulting in conclusions valid for a broader spectrum of individuals in an ERP implementation.

While BPM often is branded as an organizational strategy, it has continuous coupling to how IT can be used to support the management of processes. This makes it possible to also call BPM an IT strategy where most of the activities are performed on a tactical level, which also is the way BPM is seen in this thesis. Therefore, the theoretical framework of BPM is primarily concerned with the use of IT in BPM on a tactical level. This is primarily done to more easily draw conclusions since an ERP implementation project primarily takes place on a tactical level as well. While BPM claims to give more attention to the human factor, it's not something emphasised in the thesis. It therefore doesn't go into depth of the business actors and their feelings, attitudes or behaviour. It is however recognised that an ERP framework that incorporates BPM will have to pay attention to these factors.

1.8 Concepts

Business Process Management (BPM)	BPM is an approach that takes a softer and more evolutionary approach to process change than its precursor BPR. It puts emphasis on continuous process improvement rather than simply replacing processes.
Customization	The alteration of the standard version of an ERP in order to better fit the existing processes in an organization is referred to as customization. It's closely related to the extent of process redesign needed in an ERP implementation.
Enterprise Resource Planning (ERP)	ERP systems are standardized software that includes modules for virtually every aspect of an enterprise. Comes with an in-built process suggestion of how a business should work and how data should flow within the organization. "ERP system" and ERP is used interchangeably throughout the thesis.
Implementation	ERP implementation refers to the full process of putting an ERP system to use in an organization. It spans from the preparation, through the actual installation and ends after the system has gone live.
Process Management	Process Management is used as an umbrella term for strategic approaches that focus on dealing with business processes and process change.

Figure 1.1 Definitions of thesis concepts

1.9 Thesis Outline

2 ERP implementation	The first part of the theoretical framework aims at describing how ERP implementations are depicted in frameworks in the research field. The impact of ERP on business processes is also examined to give an understanding why Process Management might help in reducing resistance.
3 Business Process Management	The second part of the theoretical framework provides a description of the phases and activities in BPM. It highlights Process Modelling as it is an activity related to the customization of ERP systems.
4 Method	This chapter describes the manner in which the study and thesis were produced. The choice of method is motivated but critique and shortcomings are also discussed.
5 CapGemini	The analysis of the empirical data obtained from CapGemini is reported in this chapter. Full transcript from the data collection is found in Appendix 2.
6 Company B	The analysis of the data obtained from the second company is reported in this chapter. Full transcript from the data collection is found in Appendix 4.
7 Discussion	The discussion contains a comparison of the theoretical framework and the empirical data. It forms the base for the conclusions by having a strong link to the research question and the subjects surrounding it.
8 Conclusions	Conclusions based on the discussion are drawn and the practical implications are described. Any open ends not answerable by this study are suggested as topics for future research.

Figure 1.2 Thesis Outline

2 ERP Implementation

This first part of the theoretical framework starts with an elaboration on existing research conducted on the impact of ERP implementation on business processes. Three frameworks of ERP implementation are then described to form a base of phases and activities available for comparison with those of BPM. These frameworks are motivated by proposition P1, that the phases and activities affect a possible integration. The final chapter on customization corresponds to P2 and also provides information on the relationship between customization and the level of Process Management needed.

2.1 Impact of ERP on Business Processes

The impact of an ERP system is multi-faceted, meaning that it affects a vast number of aspects in an organization (Somers & Nelson, 2004). Structural changes come in the form of new divisions as well as jobs to handle the system and its data. Business deals with IT outsourcing firms will be modified if not complete dispersed of since most IT functions will be handled in-house by the ERP system. The business model will have to be reworked in order to encompass the new information flows and workflows (Gefen & Ragowsky, 2005). Job descriptions will need to be reworked when tasks become automated, unnecessary or changes in nature. Finally, business processes needs to be tended to, reviewing changes in ownership, participants, input, output and level of importance.

All ERP systems come with a predefined notion about how the processes in a company should work and it's therefore essential to have the process change as a part of the implementation goals (Ross & Vitale, 2000). It's however important to critically examine what these processes look like and not take for granted that they are best practice for the implementing company's specific business (Harris, 2004). In doing this a more conscious decision can be made whether to adopt the process propositions that comes with the ERP system or build workarounds. Harris (2004) suggests that a clear vision of how the business should work after the implementation is created, something that needs both an analysis of the current processes and the design of new ones. If this is not done there is a risk of automating unnecessary processes and thereby missing out on the potential the system has to offer. To make conscious decisions about processes can help the company be more cost efficient, since an ERP system generally initially increases the cost of processes.

An ERP system in a way open up an organization and makes the data flow through the organization without obstacles between business units (Ross & Vitale, 2000). This way more data points are accessible and the ERP system also has a very tight control over the flow of resource movements (Shang & Seddon, 2007). However, when using multiple process sources of data for a report or a function, input from every source is required, imposing unnecessary bureaucratic crosschecks leading to a delay. The streamlined processes enabled by ERP can help in reduce redundancy and duplicate work because data just have to be entered one time. This leads to increased responsibility and skill requirement for stakeholders at all levels, a change that can be met with resistance and low morale. Shang and Seddon (2007) also points out that there might be discrepancies between the quality of the different modules and the processes they propose. Newer versions with new functionality might not have been tested enough in real world companies and therefore aren't to be considered as best practice.

2.2 Implementation frameworks

Perhaps the biggest distinction between ERP systems and “traditional systems” is the way they are developed and implemented. Simplified, the traditional way means that the company hires a consulting company, a requirement specification is developed and then the system is developed according to that specification as well as the organizations business processes. Either from an open template or from scratch, all parts are customized to fit the particular business. On the other hand, an ERP is a packaged software application that is bought “off the shelf” (Davenport, 1998). It consists of modules for different business functions such as finance, HRM, accounting and Inventory Management. Instead of the system being created with respect to what the business processes looks like, an ERP is developed independently and it’s up to the organization to adapt to the ERP.

In practise it’s not that easy since the size of the system and the impact on the business is generally enormous (Ross & Vitale, 2000). Implementation projects are lengthy and costly and it’s not rare that they get terminated prematurely, fails to deliver desired benefits or exceeds the time plan and budget (e.g. Nelson & Somers, 2004; Finney & Corbett, 2007). It’s not “plug and play”-software and do generally require some degree of customization in order for the organization to enjoy any benefits. Due to these issues, much research has been conducted on creating frameworks for reaching success when implementing an ERP system. The phases in ERP implementation frameworks are often counted as between three and six, according to Somers and Nelson (2004). The implementation frameworks correspond to the first proposition in the thesis, regarding phases and activities.

2.2.1 Prisoner Escape Framework

The study conducted by Ross and Vitale (2000) includes data from 15 different organizations that at the time recently had gone live with one of the leading ERP packages. Annual revenues for the companies varied between \$125 million to \$25 billion. The implementations were either company-wide or confined to one major division but all included a manufacturing module and a combination of finance, sales and marketing and other modules. Out of the 15 companies, 8 had deployed SAP. The project lengths varied from one to five years and the total project cost varied from \$2 million to \$130 million. The study resulted in a classification of five different phases in an ERP implementation; design, implementation, stabilization, continuous improvement and transformation. These phases resemble the journey of a prisoner escaping from an island prison. First he plans his escape route and then takes the a dive into the murky water. Once in the water he struggles to reach the surface again and when he later resurfaces he swims to freedom. Finally, if the escape has succeeded, he reaches shore and has been transformed from a prisoner to a free man.

Design	Implementation	Stabilization	Continous Improvement	Transformation
Standardization? Customization?	Form project team Installation Training	Clean up processes Additional Training Fine-tuning	New modules and/or bolt-ons Organizational changes	One with the system External integration

Figure 2.1 Summary of phases and activities in the Prisoner Escape framework (Ross & Vitale, 2000)

- *Design.* In this phase the organization has to make decisions regarding process change and process standardization. Decisions about process change is closely related to the level of configuration needed, since all ERP systems comes with a predefined notion of how the

processes should work in the organization (Ross & Vitale, 2000). Accepting the processes in the ERP means minimal configuration but greater adaptation needs from the organization. The opposite would mean that the organization keeps their processes and configures the ERP to match those. The latter is the traditional way of system development, where the system is built after the current processes (Ross & Vitale, 2000). While such configuration is possible during the implementation it comes at the price of complications to maintain and upgrade the ERP. The study also showed that in this phase the organizations had to decide whether or not to standardize the processes across the company. It was noted that this decision was heavily influenced of whether the different business units were related and whether there were any differences in culture between them.

- *Implementation.* This phase is the most visible of all phases and includes putting together project team and carry out the installation of the ERP. It was noted that “going live” was generally a bigger step than planned for many since it involved not only the new system but also the new processes. It was not anticipated that the new processes would be in effect immediately and many of the users were not prepared for the transition (Ross & Vitale, 2000). Many managers concluded that if they could do it again, they would make sure more training was carried out on the new processes in order to prepare the users for the organizational change that accompanied the ERP.
- *Stabilization.* After the implementation all companies experienced a time of stabilization, where the organization tried to get a grasp of the new processes and accommodate to the organizational change. Common activities were the cleaning up of parameters and data as well as providing additional training on the new business processes. Furthermore, there were collaboration with vendors and consultants to fix bugs and fine-tune the system. While all companies experiences an initial performance dip due to the new processes, many could at the end of the stabilization phase start reaping some early benefits.
- *Continuous Improvement.* Once the organization is stabilized and has gotten used to new system and the new processes further improvement was made and more benefits were being enjoyed. The improvement mostly came in the form of the activation of new modules or bolt-ons from a third party to complement the ERP in supporting the business. The enjoyed benefits came in the form of inventory cuts, faster inventory turnover, increased order fill rate and optimized logistics. In this phase there were also some conscious organizational changes where many companies tried to adapt to the new process focus by changing to a matrix-shaped organization.
- *Transformation.* In the final phase the ERP system becomes a vital part of the organization’s activities. The visions and goals set up for the implementation can now be reached, for example increased flexibility, better understanding of business patterns and integration with suppliers and customers. This is the least described phase in Ross and Vitale’s (2000) study since they couldn’t place any of the participating organizations in the transformation phase.

2.2.2 Project Phase Model

The model framework proposed by Parr and Shanks (2000a) is based upon a synthesis of three previous frameworks. The result is a three-tiered Project phase model (PPM) that distinguishes between planning, project and enhancement. The focus of the model in the

project-phases, which therefore has been divided into five subphases; Set up, Re-engineer, Design, Configuration and testing and finally Installation. Since the PPM is concerned with helping to achieve a successful implementation, different CFS's are added to the different phases to facilitate the project being done in time and on budget. Important to note is that this concept of success differs from those frameworks that measure success in terms of business contribution from the ERP. To establish which CFS's that were crucial in each phase of the PPM, a multiple case study with two cases was conducted where at least five stakeholders in each organization participated. Below are the phases described as well as which activities and CFS's they each contain:



Figure 2.2 Summary of phases and activities in PPM (Parr & Shanks, 2000a)

- *Planning.* The life cycle starts with preparation for the project where the key activities are to evaluate different vendor alternatives, set up a steering committee, determine scope, select project champion and to allocate sufficient resources (Parr & Shanks, 2000a).
- *Project.* This phase corresponds to what frequently is called the implementation itself and starts when the choice of modules has been done and the work with installing them begins. Since the bulk of the activities take place in this phase it had been divided into five subphases, as depicted in figure 2.3 on the next side.



Figure 2.3 Activities in project phases (Parr & Shanks, 2000a)

- *Set-up.* Activities in the set-up subphase include selecting a well balanced project team with both technical and business expertise. Communication and reporting guidelines are being anchored to make sure information is available whenever needed by the team members.
- *Re-engineering.* Here the current business processes are being analyzed to determine what level of BPR is needed in the organization and how much customization of the system that will be necessary. A mapping is done between the processes and the functions of the ERP to try and establish what needs to be done. In this phase the training of the project team starts.
- *Design.* The Design subphase in Parr and Shanks (2000a) PPM is similar to the design of any other information system. It starts with a high level design followed by a detailed one that will be tested by users. Prototyping and constant communication with

the users then allows for the system to be customized to fit the organization and its needs.

- *Configuration and Testing.* Closely related to the previous phase is configuration and testing that is aimed at tuning the system to give a comprehensive version. Test instances are filled with real data, interfaces are built and tested, reports are being tested and written and the system is extensively tested.
- *Installation.* When it's decided that the ERP is configured enough and works well with the organization the efforts focus on getting it up and running throughout the company. Networks are set up, desktops installed and further user training and support is given.
- *Enhancement.* After the ERP has become a part of the organization and the project team is dissolved, the enhancement phase takes over. It can last for many years and includes system repair, extensions and transformation.

2.2.3 ERP Experience Cycle

The framework includes a pinpointing of problems during specific phases of the implementation and how the success is measured. Validity was ensured by having a large number of respondents and also collecting the data in different ways. In-depth Case studies were conducted with representatives from five companies that just finished or were in the process of finishing a roll-out of an ERP system. In addition, 11 other companies in the same situation were interviewed as well as 20 ERP consultants and vendor representatives. Extensive literature studies were conducted as well to benefit from the previous research in the subject.

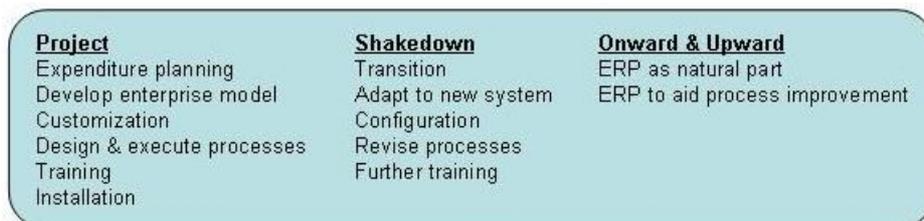


Figure 2.4 Summary of phases and activities in the ERP experience cycle (Markus et al., 2000)

- *Project.* This phase mainly includes activities aimed at preparing for the implementation and more importantly, preparing the organization for the system. It then spans to the very installation of the system, testing the system end educating the users. A crucial step takes place here in determining the time and expenditure plans for the project, since being finished on time and within budget is the most common measure of success (Markus et al., 2000). To be able to fit the organization to the system, the first step with process focus is to develop an enterprise model to identify any need for configuration. Customizing the ERP is then done to either fit current operations or planned new business processes. When this is done, work really starts with the organization when design and execution of process changes are carried out. This involves many elements of the business such as organizational structure, job descriptions and compensation for new tasks. Communication and change management are stated to be relevant activities in this phase, something mainly aimed at reducing the resistance to change (Markus et al., 2000).

- *Shakedown.* When the project is over and the ERP system is in place, the transition back to “normal operations” takes place in the shakedown phase. This means adapting to the altered way of doing business and adapting to the new system. Specific activities include changing configuration settings, upgrading IT infrastructure, revising business practices as well as procedures and retraining users. According to Markus et al. (2000) it is here the first signs of improvement in business processes should be noticed. However, to achieve this, the new system must be stabilized, the old systems and IT structures’ importance minimized and users must reach a certain level of knowledge to operate the new system.
- *Onward and upward.* Once the transition is finalized, the onward and upward phase is reached when the ERP is seen as a natural part of the organization. It’s in this phase the real benefits should become visible to the company. Decisions taken in the organization should more and more be based on information from the ERP and it becomes a strategic asset. It should be used to further improve business processes which in turn should lead to more competitive strength and the achievement of better business results. If implementations have been undertaken at multiple sites, the visibility of processes across sites should be achieved now, giving the possibility of better coordination between business units and geographically disparate units. A problem in this phase can be that any initial resistance to the implementation hasn’t been properly addressed. This can in turn lead to the users being reluctant to make further changes to business processes, to minimize the effect the ERP has on them and their jobs.

2.3 Customization and extent of Process Management

Adhering to the impact an ERP can have on an organization’s processes is crucial according to many authors and has been concluded in several scientific articles (e.g. Parr & Shanks, 2000b; Davenport et al., 2004; Shang & Seddon, 2007; Aladwani, 2001). The main reason behind this is that an ERP comes with a set of processes that by the vendor is considered to be best practises (Shang & Seddon, 2007). This is in fact a common reason for organizations to implement an ERP in the first place (Ross & Vitale, 2000). The opposite can however also be true, that the company doesn’t want to change their processes because they then might lose some competitive advantages (Shang & Seddon, 2007; Parr & Shanks, 2000b). The task at hand for the organization is then to decide on accepting those processes or customize the ERP to better fit their current processes. Research and improvement of the systems have made this a conscious choice, which can be proven by the process modelling software included in for example SAP R/3 (Curran & Ladd, 2000).

Parr and Shanks (2000b) stems in with Ross and Vitale (2000) regarding what kind of process decisions an organization needs to make in an ERP implementation. The first is regarding the nature of the change and to what extent BPR is needed to align the business processes with the system. The change can either be to streamline a process or to abandon it in favour of a newly developed one. Another option is what experts refer to as “Vanilla” implementations where the processes built into the ERP is accepted, meaning that minimal BPR is needed. Using the latter approach can mean that the management will have to create “organizational amnesia” for the old processes to be forgotten (Huq & Martin, 2006). The second BPR decision is about the scale of the change, if the processes should be standardized across the company or if the change should be confined to a region or business unit (Ross & Vitale, 2000). This choice will greatly affect the implementation project since the more people and

business areas involved, the higher the demands on time, resources and project team skill becomes.

Finney and Corbett (2007) lists the most commonly cited CFS's for ERP implementation in scientific literature and concludes that two of the top three are "BPR and software configuration" and "Change Management". Also Nah et al. (2001) reached a similar conclusion but stated the CSF regarding BPR in a less neutral way, as "BPR and minimum customization". According to the authors it's essential to align the business processes with the software and make minimal customization of the system. The stated reason behind this is to reduce errors and to be able to enjoy future releases of the software. While process focus seems to be prominent as a CSF in the literature, a survey by Soja (2008) shows that when it comes to actual goals for the implementation, technical and economic goals are more common. The most common cited organizational goal was to improve the logistics processes to have better control over production, material purchasing and order realisation.

Shang and Seddon (2007) have researched the consequences of process change after ERP implementations and have concluded that previous research have missed out on some possible negative aspects when the ERP's process suggestion is adopted. While the system might be possible to configure to match an already existing process, there is no guarantee that it's an effective process to start with. The configurability is then not always a good thing since flawed or inefficient processes also can be configured into the system. On the other hand, while the built-in processes in an ERP often can be considered best practises, there is no guarantee that they will work better than the current processes in an organization (Shang & Seddon, 2007). Since ERP's are designed to fit a great variety of organizations, they also have many options for handling processes and data retrieval. In fact, all those option could act as an obstacle for an end-user by requiring extra effort when entering or retrieving data.

Parr and Shanks (2000b) have in their taxonomy of ERP implementation approaches given the magnitude of Business Process Re-engineering much space. Following their study they claimed that all implementations can be divided into three categories depending on the physical scope, BPR Scope, technical scope, module implementation strategy and resource scope. One of the categories is "Vanilla" implementation, a term that corresponds to an implementation where the process suggestion of the system is accepted and minimal customization is made. What more characterizes a "Vanilla" implementation is that it is usually confined to one site, the number of users is small and only the core of the ERP is implemented. The opposite is the comprehensive implementation category which involves multiple sites, possibly in diverse countries as well. These are grand implementations that usually strive to have a united way of working within the business and therefore involve BPR both locally and internationally. Normally the full functionality of the ERP is implemented together with industry-specific modules, meaning that all locally developed processes will need to be altered to fit the system (Parr & Shanks, 2000b). The system is in turn customized to match processes and work together with legacy systems where required. There is also a "Middle-road" category which describes implementations that isn't as extreme in nature as the previously mentioned. It might involve only one site but in turn be customized to fit the business' current processes, rather than the company accepting the built-in proposal.

3 Business Process Management

Initially BPM is defined and the connection to Workflow Management (WfM) is briefly explained. The life cycle of BPM, which also is said to be the life cycle of a business process, is then described in a synthesis with data from different sources. The description of phases and activities in BPM is needed to answer the first proposition (P1). To tie a strategic approach to IT, the IT elements of BPM is described with emphasis on those that can be related to the implementation of a system.

According to van der Aalst et al. (2003) BPM is an extension of the WfM that started to be common in the nineties. The definition of Workflow made by the Workflow Management Coalition (WfMC) is therefore relevant to the understanding of BPM:

“The automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules.” (Lawrence, 1997 p.4)

One of the reasons behind the development of BPM is that WfM was thought to be too focused on the enactment through software (van der Aalst et al., 2003). A shift of the focus from enactment to the actual process was needed and more specifically, that just operational processes were involved. The biggest difference stated is that BPM extends WfM to include more support for the analysis in a diagnosis phase and allowing for new ways to redesign operational processes. Therefore BPM is defined as:

“Supporting business processes using methods, techniques, and software to design, enact, control, and analyze operational processes involving humans, organizations, applications, documents and other sources of information.” (van der Aalst et al., 2003 p. 4)

A main idea of BPM is to increase an organizations ability to quickly respond to changes in the environment (Smith & Fingar, 2007). This is to be done by giving back the control over processes to individuals working in the actual business. IT plays a big part in supporting and even governing business processes today and giving the control of the processes back to the business would then mean that the business needs to get control over their IT systems (Smith & Fingar, 2007). In doing so, a business could reap benefits of reduced lead times and increased flexibility to change the structure of supported business processes (Reijers, 2006). That control is not present in today's businesses, proven by that a lot of companies have an IT department that is in control of the business systems. This means that when business analysts sense that a change is needed to remain competitive, they for example write requirement specifications for alterations to the systems supporting the processes that need to be changed. These requirements are then analysed and modelled by system analysts and in the end coded into the system by system developers. By the time the change to the process goes live, it might be too late to actually make a difference (Smith & Fingar, 2007).

BPM proposes a shift from focus on the applications that are used to support business processes, to the process itself. It involves documenting the process in order to understand how work flows through it and make sure that ownership is assigned to establish managerial accountability (Gulledge & Sommer, 2002). Emphasis is also put on creating process metrics to determine business efficiency and improvement of processes to increase product quality as well as business performance. Measuring the processes effectiveness through benchmarking is also according to Bradford and Roberts (2001) the most accurate way of deciding whether an ERP implementation has been successful or not. According to BPM, the process should

govern how the business and the business applications function, not the other way around. The business applications of today often have insufficient flexibility and are separated by function, time and the data they manage (Smith & Fingar, 2007). They are isolated in a way that they perform their task at their own pace using their own type of data. While they may function within their own business unit they fail to maximise the benefit of their contribution in end-to-end processes. Smith and Fingar (2007) even take it as far as claiming that there should be no need for application development in a company that uses BPM. This is because BPM gives a direct path from process design to a system for implementing the process. The process as central entity supports both top-down and bottom-up process modelling and across the value-chain, thus facilitating collaboration with external stakeholders.

3.1 BPM life cycle

While BPR advocated a swift and radical change to business processes, BPM relies on a softer, evolutionary approach. This also means that the phases in BPM are continuously connected since once the “final” step is completed, a new round starts again. Smith and Fingar (2007) mean that the life cycle of a process looks exactly the same as the life cycle of BPM. It’s divided into eight parts and stretches from discovery to analysis in a continuous cycle. Similar life cycles have been presented by van der Aalst et al. (2003) as well as Netjes, Reijers and van der Aalst (2006). The two latter compressed the life cycle to only being four and five phases respectively. However, the extra phases in Smith and Fingar (2007) are often present in the other life cycle definitions as well, but then as activities instead of full phases.

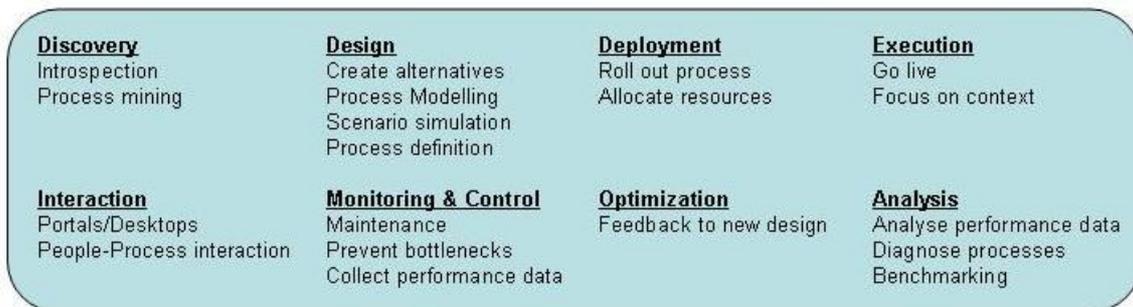


Figure 3.1 Phases and activities in BPM (Smith & Fingar, 2007; van der Aalst et al., 2006; Netjes et al., 2006)

- *Discovery.* The discovery of a process means finding out how something is done or can be done and should provide a clear picture of how the process works, both internally and externally. This process mining can be done either manually by mapping out the business or automatically by introspection of legacy system code. The goal is the same, to make ingrained processes explicit and provide an understanding of the business as a whole.
- *Design.* The input in this phase is either a need for a new process or an already existing process that through the diagnosis phase has shown weaknesses. If it’s the latter, the objective is to create an alternate process where improvements have been done to those areas of the process the diagnosis found weak (Netjes et al., 2006). The emphasis lies on the performance of the process and what the internal structure looks like. The activities in the design phase are modelling, manipulating and redesign of the processes after they’ve been discovered. All the elements of the process, the actors, resources, rules and relationships are determined and tested in different scenarios with the help of simulation. Process metrics should be set in order for business analysts to be able to spot any

variances and quickly react to competitive pressure or opportunities in the market. Smith and Fingar (2007) point out that the modelling notation used should include behavioural aspects of the process and be compact in nature to be able to include abstract business concepts. The modelling in BPM is meant to be done by business analysts rather than software developers who usually create models to interpret the business in order to create a system that supports it (Smith & Fingar, 2007). The output of the phase is a process definition that states process structure, resource structure, allocation logic and interfaces.

- *Deployment.* The deployment phase means that the process is rolled out to the involved people, applications and connected processes. The process is moved from the modelling board to the real business and the necessary resources are distributed. Smith and Fingar (2007) claim that in the new era of BPM, all this can be done with minimal manual intervention and without additional technical steps. They state that IT is capable of doing this through in advance using a projection of the process to integrate application components. The process can also be mapped and bound to standardized interfaces to work between organizations, business units and management systems.
- *Execution.* When the conditions for the process are set in the deployment phase, the process goes live and is carried out by the participants. Generally, the execution is performed by a process management system that controls the flow of data, translates where needed and stores data about a process. In the execution phase the attention shifts from the internal structure of the process to how it works in a specific context and what factors in the context that can change (Netjes et al., 2006). Some of these environmental aspects are information on arriving cases and availability and behaviour of the internal as well as external resources involved in the process. In van der Aalst et al. (2003) this phase is called the enactment phase and represents the launch or execution of the process through a chosen tool, often an IT tool.
- *Interaction.* Process portals and process desktops are used to let people interact with business processes. The tools act as a gateway between manual work and automation, and lets people manage, observe, monitor and intervene within processes. BPM represents processes as data and it is Smith and Fingar's (2007) presumption that techniques will emerge that lets users create, read, write, modify and extend process description in a manner similar to how HTML editors work today.
- *Monitoring and Control.* This phase represents the maintenance of the process in a way similar to how maintenance of an Information system works. Activities include making sure sufficient resources are allocated, dealing with unexpected errors and making sure the technical environment works as it should. By identifying variances in the flow and alerting process owners, temporary bottlenecks can be prevented by the adding of extra resources. Minor changes to the internal structure are done in the form of adding, removing or changing participants. The monitoring involves tracking of the input throughout the whole process in order to see that it works as smooth as possible. Both data on individual cases and aggregate performance of the workflow is recorded (Netjes et al., 2006). The data collected can then be used as input for the diagnosis in the analysis phase in order to identify any improvement possibilities.
- *Optimization.* The optimization aspect means a process of continuous improvement of single processes, classes of processes and the business as a whole. It's the activity that

closes the BPM life cycle since it takes the feedback from process performance analysis and returns it as input for a new design phase. Process optimization becomes possible when the result of the monitoring is used to determine whether changes can be made to reduce costs, increase effectiveness or similar (van der Aalst et al., 2003).

- *Analysis.* The measuring of process performance and the analysis of the results is what really makes a difference when it comes to business improvement (Smith & Fingar, 2007). The data from the control phase makes it possible to diagnose processes and decide whether they can be improved in any way. The aggregate data becomes the subject of process mining, business process intelligence and data mining techniques to identify factors that makes the process not function optimal (Netjes et al., 2006). Business Intelligence in the form of business metrics like activity-based costing or key performance indicators should be extracted directly from processes in order to see exactly what affects them. This data can be compared to history, benchmarked to best practise or compared to other similar processes. Once again simulation becomes an important technique, since it can help in providing information on how changes can improve a process.

3.2 IT Elements in BPM

While it's not an absolute must to use IT to follow BPM, it can in many ways facilitate all the different phases (van der Aalst et al., 2003). To build upon the ideas of BPM, new specialised systems focusing on business processes emerged, BPMS's. The connection between WfM and BPM was described earlier and the difference between Workflow Management Systems (WfMS) and the BPM equivalent BPMS is basically the same (Reijers, 2006). A WfMS's main functionality is process enactment, to take care of the automation of resource and work allocation in accordance with the process model. A BPMS is in many ways similar and supports the activities of modelling, analysis and enactment of business processes (Reijers, 2006). The biggest difference is that it also offers more sophisticated diagnostic tools for both the modelling and supervision of processes. Looking at the bigger picture, a BPMS should also provide better possibilities of Enterprise application integration (EAI) and business-to-business integration than its precursor.

A more conceptual view of IT elements in BPM is taken by Küng and Hagen (2007) that distinguishes between five main IT-related components. *Process Modelling* is used to conceptualize what the process really is with the help of some sort of standard notation such as UML. A *Process/Workflow Engine* is an IT component that enforces the processes in applications and makes sure they are carried out in accordance with the model. *Real-time monitoring* involves supervising single cases of a process to identify which state they are in and make sure it works as intended. With the help of applications for *Process performance measurement* the functionality and outcome of a process can be measured using predetermined metrics. The final element, *Business rule management*, aims at extracting business rules embedded in old systems and make them manageable in a business rules engine.

3.3 Process Modelling

Out of the five IT elements Küng and Hagen (2007) refer to, Process Modelling is the one with the most connection to an implementation project rather than an actual system. Workflow engines, monitoring, measurement and business rule management corresponds to activities when a system is already in use. Smith and Fingar's (2007) view of Process Modelling in BPM follows a method called "Model, Deploy, Manage". The method

emphasises the need for involvement of many different user types throughout the process, such as business analysts, software developers and system administrators. First, the business process is modelled with the help of a graphical interface and all designs are stored in a process repository. This repository is useful for later integration of processes between business units or organizations. The process is then deployed to the participants who receive a common description of the process in order to reduce any differences. Last, the process should be managed with tools using business process query languages to provide a fluent movement of process activities.

An important distinction between “regular” process modelling and how it’s supposed to be done in BPM is that there should be no need for translating models into computer code (Smith & Fingar, 2007). Instead a language should be used that is readable by both business analysts and the system managing the processes. This facilitates live updates, simulation, analysis and tuning of processes by the ones that actually manage the business. It enables quicker response times to changes in the business environment as opposed to how it worked before, when requirements were specified by business analysts, models created by system analysts and then turned into code by system developers. The new way of working encapsulates one of the key goals with BPM, to remove the gap between the business and its IT.

3.3.1 Business Process Markup Language

To reach the goals of the third wave, Smith and Fingar (2007) highlight the need for a technology specific to business processes. Their solution is to use Business Process Markup Language (BPML) as standard to provide a ubiquitous platform both for building process management applications and for modelling business processes. BPML works for creating conceptual models of processes but also includes XML syntax for expressing and managing business processes. A modelling notation is used to make it easy for anyone to work with BPML and this notation directly correspond to executable code. This means that Business analysts directly can execute any changes to a process, thereby removing the steps of requirement specification and code development. While it seems close to Rapid Application Development where executable code is generated from a model, the difference is that BPML *is* the executable code (Smith & Fingar, 2007). The development of BPML is still in its cradle but the intention is to keep it a generic language for describing process structure, covering aspects such as business activities, business transactions, process data management, concurrency, exception handling and operational semantics. By making it only describe the process itself and not how systems should run it, software companies are encouraged to innovate in regards to performance, scalability and robustness in their own process software.

4 Method

Much of the method is aimed at motivating and describing the way the study has been conducted. The study does not fall under a certain category amongst the traditional schools of qualitative research, but the research methodology has gotten inspiration primarily from the case study methodology. Emphasis is also put on explaining the chain of evidence and describing what parts of the conclusion's foundation that were needed from the theoretical framework and the empirical study respectively.

4.1 Method Motivation

To choose to conduct a qualitative study it should be called upon by the nature of the research question (Creswell, 1998). This thesis sets out to investigate *what* possibilities exist to combine the strategic approach of BPM with ERP implementation. In order to do this the two concepts must be thoroughly explored, the phases in ERP implementation must be determined as well as what activities these phases consist of. Achieving a detailed description through quantitative means is a possibility but then the holistic picture of an implementation could be missed. In a quantitative survey for example, much of the researcher's control is lost once the survey is sent out, meaning that if the data wasn't sufficient to show the full picture of an implementation another complementary survey would have to be sent. In qualitative research, it's on the other hand possible to quickly and freely move between collection of data and theoretical analysis (Mark, 1996). The topic of this thesis is in need of exploration, since not many researchers have focused on the link between process change and ERP implementations despite it being mentioned several times. Furthermore, a qualitative approach is best used when variables not easily can be identified and when there is a need to present a detailed view of the topic (Creswell, 1998). It's in fact precisely that this thesis sets out to do, to identify ideas and methods in BPM and ERP that could lead to a possible integration of the two. While there are many frameworks for ERP implementation in the literary field, they have dissimilarities that can not be ignored. In order to see how it works in practice on a more detailed level, a qualitative approach was selected for the thesis.

Out of the five methodologies described by Creswell (1998) the study has the most similarities with a case study. First, the setup of the thesis research matched the description of case studies by Yin (2003). The research question is an exploratory "what"-question, there is no need for control over behavioural events and it focuses on contemporary events. Second, it was known that prior developments about ERP implementations and especially BPM would guide the data collection and also be a big part of the conclusions. This way of using already developed theories is recommended when conducting case studies (Yin, 2003). In the case of this thesis, the frameworks of ERP implementation created by other authors not only guided the way the data was collected, they also serve as a comparison to the results. Because of these similarities, methods for conducting case study research have been used. However, a case study calls for a thorough description of the context, something that is not included in the thesis. The topic of the thesis is regarding ERP implementation and for it to be a real case study it would be necessary to study an actual implementation and its context. Having an implementation as case would mean that the observations would only be conducted on a small fragment of the whole project, not giving an accurate picture. This study focuses on the *way* ERP implementations have been conducted by the respondents and the consultant companies, not a specific case implementation.

The research process has been guided by the central concepts of ERP and BPM but also by use of propositions. Propositions are factors that drive the study's attention to certain aspects within the scope of the study (Yin, 2003). The propositions in the thesis are based on previous research, particularly in the form of the three ERP implementation frameworks and the research on ERP's impact on business processes. The proposition regarding manner of payment is on the contrary motivated by the lack of conclusions regarding a topic in previous research. Since there is little said about how the payment structure affects an ERP implementation, it becomes an interesting factor to investigate. The propositions shaped the data collection plan by the fact that they influenced the themes of the interview as well as the choice of respondents, as suggested by Yin (2003).

Interviews were selected as the main way of collecting data for the thesis due to both practical and methodological reasons. Practically, getting access to an actual implementation would mean that both a consultant company and the client business would have to be interested and be willing to participate. It would also mean that the focus of the study would be a specific implementation since having multiple implementations in the study would not fit the resources available. The nature of the research question calls for data about a full implementation, meaning that any implementations in the study would have to be finished in order for all of the phases to be available. It was decided that the easiest way to get comprehensive data would be to interview respondents at a consultant company. That way the interviews could focus on the general way implementations are done, with occasional reference to specific implementations. Methodologically, the strength with interviews is that they are targeted and focuses directly on the researched topic (Yin, 2003). This proves that the thesis benefits from interviews since what empirical data that was needed was determined early in the research project. The author also perceived that the validity of the thesis would be strengthened if interviews were used rather than observations due to the time span of implementations.

4.2 Creating the Theoretical Framework

The theoretical framework builds upon three cornerstones of articles and books; those focusing on providing ERP implementation frameworks, those discussing the relationship between Process Management and ERP implementation and finally those focusing on BPM. The articles were almost exclusively found using the Electronic Library Information Navigator (ELIN) provided by Lund University. Rather early on the author noted that many of the relevant articles, regardless of the focus, were published in the same journal. This journal, *Business Process Management Journal*, was available in Emerald's electronic library to which the author had access to through ELIN. This led to close of half of the referenced articles originating from the same journal, which in no method literature has been found to be either negative or positive.

The articles chosen from the article base to represent frameworks for ERP implementation were selected based on how often the article was cited or referenced by other authors. While no count was made, the author is certain that the ones being referenced or cited the most also are the ones included in the thesis. To back it up it can be said that one of the frameworks used in the thesis, Parr and Shanks (2000a), is based on the two other frameworks presented. This shows that the frameworks are widely accepted in the scientific field of ERP research. In the case of both Ross and Vitale (2000) and Markus et al. (2000) the same authors had created multiple versions of their framework. An effort was made to make sure the versions included in the study were the latest in order to make it as relevant as possible.

Articles focusing on the relationship between ERP implementation and Process Management were found using searches in ELIN. Keywords searched for were “ERP”, “Process Management”, “BPR” and “BPM” in different combinations. More articles were then found by following up relevant references and by browsing issues of Business Process Management Journal. Finding relevant articles on BPM were significantly harder, probably because it’s a relatively new concept. The main source of information about BPM was the book “Business Process Management: The third wave” by Smith and Fingar (2007). It is written in a language that is understandable by people outside the scientific sphere. It seems aimed towards managers and the quote before the preface of the book verifies this:

“This book is dedicated to the business and technology architects and builders of 21st century corporations. Build to adapt, not just to last.” (Smith & Fingar, 2007, prologue)

The book is not objective in any way, especially since it is endorsed by the Business Process Management Initiative (BPMI). Old ways of conducting Process Management are rejected and the greatness of BPM is being proclaimed without sufficient scientific evidence. The bias of book has been taken to account when this thesis has been written. However, the book has been the best-seller in a number of different business categories [1], meaning that there must be some quality in it. The reason the book is being used in the thesis despite the bias is that the threat bias causes is of lesser importance. It is still a concept in the growing and the aim of the thesis is to see if it can be matched with an ERP implementation. For this purpose, bias in BPM theories is irrelevant since it’s the testing of a theory rather than a real world phenomenon.

4.3 Company and Respondent Selection

A conscious choice was made to restrict the number of respondents since the author wanted to get close contact with the one or few involved in the study, motivated by the depth needed in the study to get a good view of how an implementation works in practise. Choosing few respondents can be beneficial when the problem is not thoroughly explored and in need of in-depth analysis (Kvale, 1996) The author had a choice between approaching businesses that had recently implemented an ERP system, seek contact with consulting firms that conduct them more often or to collect data from both sides. It was decided that respondents from consulting companies would be the most suiting for the thesis, since it would give access to a wider spectrum of data that still were as detailed as if a “normal” business would be chosen for the study. Using respondents from consulting firms mean that more “cases in the case” would be available since conducting ERP implementations is a part of their everyday job. Interviewing respondents from consulting firms was also believed to provide data on a higher level since they would be familiar with terminology and be able to give thorough descriptions on phases and activities.

Contact was initiated with one of the major Swedish actors in the IT consultancy market for implementation of ERP systems. The author asked to get in contact with one or more respondents that would be able to answer question about ERP implementations on a project level rather than technical, in order to make sure the respondents possessed sufficient knowledge about the project itself. The first respondent had been in charge of three SAP implementations during the past three years and had also previously worked in a business that had SAP implemented in the organization. This meant this sole respondent could give access to the general way an ERP is being implemented as well as provide specific data from four

different contemporary cases. Furthermore, in one of these cases the respondent were on the business side, meaning data could be collected to give insight on the different perspectives of consultant and future user.

After the first interview it was decided that data from this sole respondent would be sufficient for representing how ERP implementation were conducted in the company. While it's a single respondent, it is not only one case since the unit of analysis is available in four different instances. The goal of the data collection was to extract data on an implementation methodology from an actual business as well as get data about the characteristics of fixed price implementations. This was perceived to be achieved by interviewing a respondent who had knowledge about the way her company carried out implementations and on top of that been on the business side of an implementation as well. With this background she was able to describe the difference between a fixed price project and one where the consultants are billed per hour.

To enhance the external validity of a thesis, contact was initiated with a second company that implements ERP systems. Also here the author asked to get in touch with someone who could answer questions about the general way they implement ERP systems. The respondent works as an account manager and has worked in the company for seven years which has given him a good overview of the methodology. To make sure every part of an implementation was covered, the author also received documents that described the methodology as well as the product.

4.4 Interviews and Transcription

The interviews were conducted at the respondents' offices and were semi-structured in nature. Interview guides were loosely used since the author wanted the respondents to choose what to emphasize on. This way the relevance of activities, phases and issues could be estimated depending on what the respondents decided to speak most about. A semi-structured interview lets the interviewee answer the questions in their own terms and lets the interviewer choose when to ask further questions to go in-depth with a topic (May, 1997). Intentionally, the author became more of a listener than an interrogator and only intervened when something needed immediate explanation to grant future understanding. The fact that the interview was supposed to be rather open-ended was communicated to the respondents early on, in order for the interviewee to not feel inhibited or stressed when answering the questions. Making sure that the interviewee knows what is expected of him or her is important from both a quality perspective and an ethical perspective (May, 1997).

The interview guide was written in the form of major themes that in some cases had a few subquestions. The themes were decided by the propositions and are marked with P1, P2 or P3 in the interview guides (Appendix 1 & 3). These subquestions were mostly created to subtly aid the author in making sure all the desired factors was included in the respondents answer to the main question. In the odd cases this didn't happen, the author subsequently asked the subquestion to get full coverage. The interview guide was slightly edited before interviewing the second respondent. These minor changes were done because it was a different system they implemented and because the relevance of certain questions had diminished after analysing the first interview. The difference between the interview guides is not believed to have affected the conclusions, since the main topics still were the same in both interviews.

The topics of the interviews were designed to follow the propositions and the theoretical framework as much as possible, in order for conclusions to be drawn. This meant that the main topic of the interviews were how ERP implementations were conducted in the consulting company. It also included questions on the characteristics of fixed-price implementations as well as views on customization of the ERP. While not being the centre of the interview, information about the BPM approach was presented in order for the interviewee to express spontaneous thoughts on whether it could be useful and in some way integrated to be a part of the consultants work as well.

In order for the interviewer to pay full attention to the respondents and to make sure all data was collected, the interviews were recorded using a tape recorder. The full interviews were transcribed with the recording as source and were made by the author himself. Kvale (1996) repeatedly states that there are no firm rules on how the transcription should be made, only that it in the report clearly should be explained how it was done. Also, the level of depth, accuracy and notation of visual events should be determined by what the transcript is to be used for (Kvale, 1996). During the both interviews the respondent used a whiteboard to illustrate a variety of things such as the phases of an ERP implementation, the division of project groups in an implementation and the order of activities. Everything that was noted on the whiteboard was copied by the interviewer to make all data presented available for later use.

In this particular study, the transcripts were primarily made to aid the researcher in the reporting and analysis of the data and have therefore been done to reflect what was said during the interview. Audio that is present on the recording but not in the transcripts is numerous “mm” from the interviewer, which during the interviews worked as a sign that everything was understood, there were no immediate follow up questions and that the respondent could continue speaking if there were more to be said. Furthermore, a minute long explanation of the relationship between workflow management and BPM is only noted as an event in the transcription. The notation of events in the transcriptions has been done sparsely, since events during the interviews were deemed irrelevant. Notating events, pauses and specific time is only crucial when psychological interpretations are to be made (Kvale, 1996). Being an aid for the researcher left the option open to condense the transcript in order to only reflect particular views and opinions of the respondents. Therefore some parts of the interviews has only has been noted in the transcripts and not transcribed verbatim. This has been done with topics that feel outside the delimitations of the thesis. The transcripts were needed for validity purposes as demanded by the department of Informatics at Lund University and can be found in Appendix 2 and 4.

4.5 Analysis

The transcriptions were analysed with special attention given to the propositions in the thesis regarding ERP implementation methodology; the manner in which the projects was paid for and the extent of customization. The manner in which the analysis was conducted fits the description of Ad hoc meaning generation, which is the use of different analysis techniques are used for meaning generation (Kvale, 1996). Categorization was used in a simple form, where paragraphs of the transcription were marked with which topics they were about. The categories used were primarily connected to the propositions but also to topics that were relevant to the thesis and that had been included in the theoretical framework (figure 4.1). The categorization later served as guidelines for the reporting of the empirical findings, where the different categories are used as headings.



Figure 4.1 Categories for meaning generation

Meaning structuring through narrative was used to describe the methodology used for ERP implementation at CapGemini. This was found to be suiting since an ERP implementation can be seen as a project with chronologically ordered activities and phases. It thereby matches the description by Kvale (1996), that a meaning structuring through a narrative can be used when a temporal sequence or series of happenings is being investigated. The respondent told the story about how they conducted ERP implementations, and this story was then used to form the methodology presented in the empirical findings. Furthermore, meaning condensation was used to extract the main points throughout the interviews. This meaning condensation served two purposes; it facilitated the process of going from gathering the data in Swedish to reporting it in English and also that the condensation itself could be used for reporting on topics of lesser relevance. The condensation was done by extracting the core meaning of a longer statement by the respondent and then reported in the empirical findings.

4.6 Chain of Evidence

The chain of evidence in a great deal follows the propositions in order to create conclusions that answers the research question (figure 4.2). The phases and activities of both BPM and ERP implementation are central in the theoretical framework. Three frameworks of ERP implementation are presented in order to be sure that all activities that might be in one but not the other also is available to help in facilitating a match between BPM and ERP implementation. Having multiple frameworks also provides a hint of what might the most recurring activities are, thus making them important. BPM was examined by literature study only since it's still an approach in the making and not yet common in the business world. The theoretical framework also includes the topic of customization, which is about creating a match between business processes and the ERP system.

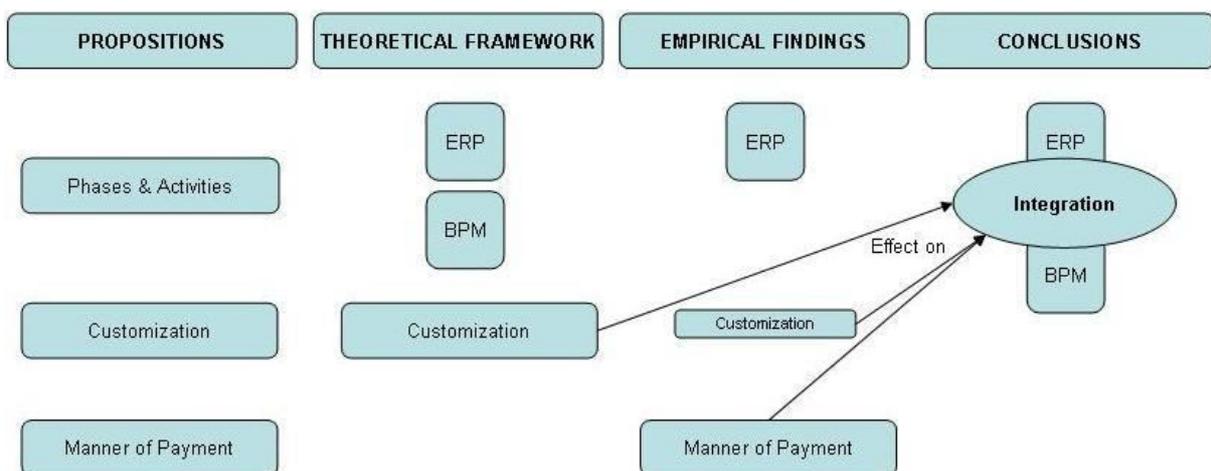


Figure 4.2 Chain of Evidence

In the interview and subsequently the empirical findings the main concepts were ERP implementation and manner of payment. This provided the thesis with a fourth framework as well as highlighting characteristics of fixed price implementations that might influence the possible integration between ERP and BPM. The issue of customization and process management was also brought up but at a lesser extent, primarily due to it not being the main aim of the interview but also because it was not the respondents' main field of expertise. The empirical data that was collected mainly only covers one part of the research question, namely ERP implementation. While information on the impact on processes is present in the empirical findings, BPM is not.

The conclusions were drawn by using the phases and activities in BPM described by the literature and comparing these to those of ERP implementation found in the theoretical framework as well as the empirical findings. The propositions about what possibly could influence this integration were customization and the manner in which the implementation was paid for. Data and information on customization was taken from both the theoretical framework and the empirical evidence. Since the data collection was from fixed price implementations it provide the opportunity to spot differences due to the differences in the manner of payment. These differences allowed for conclusions to be drawn on the effect both level of customization and manner of payment has on a possible integration between ERP implementation and BPM.

4.7 Research Quality

The biggest concern about the study is the external validity and generalizability, which points to the issue of the conclusions being strong enough to hold in other settings (Seale, 1999). Important to point out is once again that the aim of the study was not to see if an integration has been proven to work but rather investigate the elements that could help determining if such an integration is viable. These elements are represented in the propositions and are continuously connected to throughout the thesis. The concept of BPM is handled in a "static" way, meaning that the theories proposed in the theoretical findings are the only material on BPM that is used in the study. With this in mind, it is recognized that actually investigating the use of BPM in practise could have led to different conclusions. The decision to not investigate BPM in practise was taken because it was the actual theories that wanted to be used. The BPM concept as described in Smith & Fingar (2007) is still new and how to actually use it in practise is still debated leading to BPM efforts looking very different depending on which business chosen to investigate (Küng & Hagen, 2007; Box & Platts, 2005).

The external validity is also threatened by the fact that the conclusions are based on empirical findings from only two respondents, where one isn't involved directly in ERP implementations. However, the elements that were the main aim of the empirical collection of data were the methodology for implementing ERP systems as well as characteristics of a fixed price implementation. The methodologies were official standard in the companies, meaning that all implementation projects should be carried out in the same manner. The respondent who had participated in several implementations reported no deviation in the methodology used in these different implementations, apart from the one where she was on the business side. While it can not be certain that interviewing another ERP implementer at the same company would yield different results, the likeliness of that being the case diminishes due to it being an official methodology in the company. This corresponds to the notion of theoretical saturation, where the researcher feels that no new data is added despite additional data

collection (Seale, 1999). While it's not certain that theoretical saturation has been reached, additional interviews within the same companies haven't been conducted due to the fact that the data relied on official methods rather than personal opinions of the respondents.

Regarding the report, Yin (2003) points to three procedures that enhance the quality. The first is about the importance to start composing early in the research process. This was done in the thesis, where the theoretical framework was continuously filled with new theory to match the analysis of the empirical findings. The second is related to confidentiality and involves decisions on whether the identities of the respondent and the company should be disclosed. By disclosing identities it also becomes possible for the reader to associate the results with previous research the company has been involved in as well as checking up on the sources (Yin, 2003). One respondent decided to allow both her name and the company name to be disclosed in the final report. The second respondent chose to disclose his own identity but requested his company not to be mentioned, due to the fact that he hadn't gotten official clearance.

The third procedure is concerned with the reviewing of the study to validate the overall quality (Yin, 2003). This should be done by not only fellow researchers, but also participants and informants. To ensure the quality and accuracy of the collected data, the analysed interview was sent to the respondents to make sure it contained no fundamental errors or misconceptions. Furthermore, a follow-up interview was conducted through e-mail to fill gaps that were encountered after analysing the first interview. After the first review by the respondent at the first company, which took place approximately 4 weeks after the interview, minor corrections were made regarding the name of the phases in the methodology and information that revealed information about a current implementation conducted by the respondent. The overall validity of the study has also been increased by supervising sessions where other students as well as supervisors have examined the continuous work.

4.8 Research Ethics

According to Kvale (1996), some core ethical considerations in qualitative research are regarding beneficial consequences, informed consent and confidentiality. Informed consent was acquired after the interviews, where the respondent could choose the level of confidentiality and also was informed that the analysed material would be sent before publication for correction of errors. Sieber (2001) defines informed consent as a specific agreement about the conditions of the research participation and ongoing communication between the researcher and subject. Therefore it was important to make sure that the respondents knew about the rest of the research process and how the collected data would be used. Ongoing contact through e-mail ensured that there were no uncertainties from the respondents. The two components in the concept of confidentiality, anonymity and data confidentiality, can be protected by making sure no one can identify the participants and by storing raw data under lock and key (Singer & Vinson, 2002). The confidentiality agreement in appendix 3 shows that exactly these issues were given attention and that the respondent was free to choose the level of anonymity. While it's not a must to get written consent in most social studies, it serves as good evidence that the participants have read and understood the informed consent information (Mark, 1996).

Regarding the beneficial consequences Singer and Vinson (2002) also discuss the matter and mean that a researcher must seek to maximize the benefit for an individual, a company or the society and at the same time minimize the possible harms from the outcome. It was

thoroughly explained to the respondent that the purpose of the thesis was to describe the possibilities of using BPM in an ERP implementation. It was also explained that the reason for choosing the topic was that previous research had shown that an ERP system greatly affects business processes and could lead to resistance. This made it possible for the respondent to understand that the outcome could be interesting for consultants implementing ERP systems. The risks associated with research established by Sieber (2001) can be of psychological, social, economic, legal or physical nature. The risk identified in the study was in a way of economic nature, that the manner of payment could influence a possible integration. Therefore it was explained that the nature of fixed price implementations were a part of the research and that the result might not be beneficial to that kind of implementations.

5 CapGemini

The data on ERP implementation from CapGemini was collected through interviewing Annica Norling at CapGemini in Malmö. The collection and reporting follows the propositions stated in the introduction to ensure that the data was usable within the problem area. Apart from the proposed topics, the empirical findings also include data on reasons for adopting ERP and on resistance.

5.1 Respondent and Company Presentation

Annica Norling has a degree in chemical engineering and started her career by working in the Industrial Energy sector. Her last job before CapGemini was as Manager at Eon with product responsibility for a segment of the business. When Eon started to implement SAP in 2000, Norling was appointed project leader for the business part of the implementation. It was through this project she came in contact with CapGemini and has worked there for 3 ½ years now. Her duty now is to manage fixed price implementations according to CapGemini's method "Deliver" that is based on the method recommended by the ERP vendor. CapGemini is an international corporation with services in consulting, outsourcing, technology and local professions.

5.2 Implementation methodology (P1)

The implementation method used by the CapGemini is based on the method proposed by SAP but has been further enhanced to suit the company's culture and way of doing business. It starts the day the client have decided on what kind of implementation they want, what they need from the consultants and what modules that should be included. The method includes five phases, that all differs in length depending on the scope, level of modification and number of modules included.

- *Project Preparation phase.* Once an agreement has been met the preparation for the project starts in order for everything to run as smoothly as possible. Handling staffing issues like appointing team members and assigning project roles are the first steps in getting it all started. Furthermore, practical decision are taken regarding what the documentation structure should look like, which facilities to use and what internal technical infrastructure that should be used for collaboration and communication. The actual project plan is created, with particular emphasis on what exactly should be delivered at the end of each phase. A lot of economical planning is made in the form of creating budgets, economical models, tools for follow up and profitability estimates for both internal and external personnel. The duration of this phase varies depending on if it's the customers first time implementing SAP and the scope of the implementation. It can also be the case that a company is deploying SAP on multiple sites in different countries. On those occasions the first preparation phase on the first site is naturally much longer than the equivalent in the following projects.
- *Business Blueprint phase or Gap analysis phase.* In this phase the scope of the implementation is set, what is really to be implemented? This phase can look very different depending on whether if it's the first implementation or if it's a continuation that just involves rolling the system out on new sites. If it's a new implementation in a new company, a template is created based on the needs and desires of the implementing organization. This results in a "Business Blueprint", a document that serves as a recipe for

what is about to be done. If the project is about rolling out the system on more sites than the original one, the result is instead a GAP document, where the differences between what the specific site needs and the global template is described.

“The Business Blueprint is our recipe so to speak...a Gap document presents the gaps, the difference between the original template and what is needed here.”

The global template is offered to the new sites and then modifications are decided upon in the GAP document due to legal issues or functionality requirements. The Gap phase involves a number of workshops with the business in order to make sure the Business Blueprint or the GAP document is perfectly accurate. If not, there is a possibility of a small error growing bigger and bigger as the implementation goes on. It's in the GAP phase CapGemini has the most contact with the business in order to get an understanding of the business and what they expect from the implementation.

- *Realization phase.* For CapGemini this is the building phase where the modifications and extensions of the system are made according to what has been decided in the Gap phase.

“Once we know what to build we enter our little chamber and start building. We configure and develop our solution in accordance with the Business Blueprint or GAP document.”

The phase not only includes building the solution but most of the time it also involves testing it. The testing is normally conducted sequentially in three different environments with three different goals. When a part of the functionality has been developed it's initially tested in a *Unit test* by an application consultant to make sure it works as intended. If that test is passed, the component is tested in its context in an *Integration test* to make sure it interacts with other parts of the system as desired. This involves testing whole processes, for example to make sure that when a product is sold, it's deducted from the inventory, an invoice is created and information about the purchase is stored. While the first two tests are done solely by the consultant company, the third test is conducted by the business. In the Acceptance test the business tests the processes to make sure they are satisfied with the solution. Once all parts of the system have been accepted, the implementation moves into the next phase.

- *Final Preparation phase.* Main activity in this phase is to gradually stop using the old system in favour of the ERP. The data in the old system, for example inventory, is being checked for errors in order to facilitate the migration to the new system. One by one the functions of the old system cease to be used, something that might mean that the business have to resort to pen and paper for a short period of time to keep track of certain processes. This phase ends when the system goes live and all the data from the old systems are migrated to the ERP. This migration has been tested in the prior phase as well to make sure it will work in a satisfying manner. The old systems that aren't to be used any more are shut down and the ERP becomes a part of the everyday work of the business.
- *Go Live Support.* Once the system has gone live CapGemini usually leaves the business for a while in order for them to settle in with the new system. Once it has been up and running for a while the business realises if something isn't working properly and needs to be modified. These modifications are done in this phase together with general support of the system. It can also be the case that it's the users that use the system in the wrong way,

something that CapGemini then help in correcting. It's important to pay attention to that any changes to the solution can affect other parts of the business or other sites that also already have gone live with the system. The amount of time and effort in this phase depends on the needs of the customer; how used to the new system they are, how involved they've been in previous phases and if they have conducted organisational changes following Go Live. Once the system is stable the implementation project is officially over and further support is called application management and is a service detached from the project.

Norling says that it's hard to generalise how long each phase takes in the project. The percentages of total time in the model below are estimates of a standard implementation where a standard template is being rolled out in a business. They can vary depending on circumstantial issues like the level of definition of the requirements and how much development that is needed in addition to the standard template. The percentages stated in figure 5.1 below are not general for the CapGemini method, but are a rough estimate personally made by Norling.

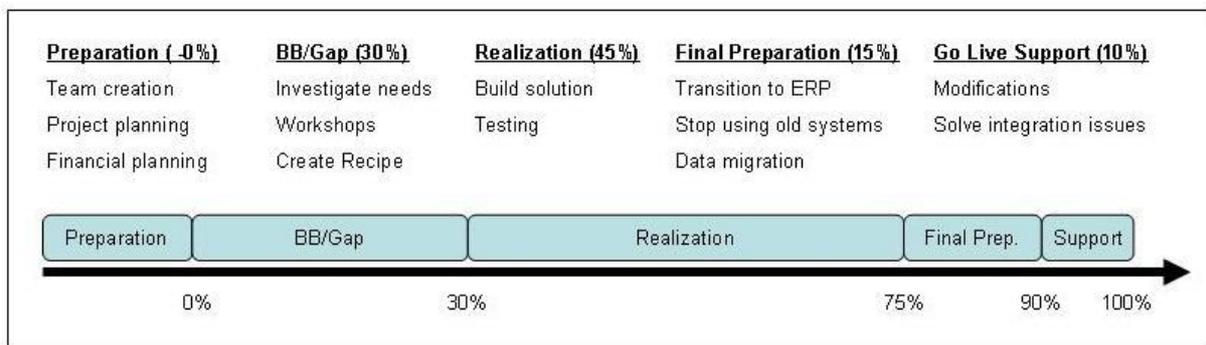


Figure 5.1 Phases and activities in the CapGemini methodology with estimated percentages

Norling states that almost always the project plan looks the same for the business and the CapGemini. Often the business hasn't conducted an implementation of the magnitude of an ERP system and has a hard time knowing what extra activities that might precede the implementation. The only activity the respondent can think about is a series of executives meetings to decide on the scope, but the general business rarely even knows until the day a contract is written. It's actually imperative that the project plan looks the same for the consultants and the company, since fixed price implementations consists of two projects in one so to speak. The consultant company takes care of the technical implementation and has a project manager of its own. To make the communication work between the two project groups and to make sure the schedule is held it's essential that the groups look the same and follow the same plan.

5.3 Fixed Price Implementation (P3)

The main part of the implementation projects conducted by CapGemini is fixed price projects, where the buying organization pays a set price for the whole implementation. The opposite is projects managed by the customers themselves and competence are hired in the form of consultants paid on an hourly basis.

“CapGemini Fixed Price is that the customer says that for X million we want this kind of implementation on X amount of sites.”

All the projects Norling has participated in have been fixed price projects and the biggest implementations the past three years have been fixed price as well. Norling believes that most of the scientific articles regarding ERP implementations haven't taken into account the economic pressure present in fixed price implementations. In fixed price implementations, a contract is written initially stating the cost of the implementation, what modules it should include and how as well as where the work should be conducted. The projects are very controlled by the fixed price and the written contract, meaning that the cost of any extra activities needs to be negotiated separately. One of the first steps is that CapGemini creates a plan and instructs the business on what and when they need certain approvals from them.

There is a rather strict division between the technical IT implementation and the business implementation in fixed price projects. The IT implementation is run by CapGemini while the business implementation is run by the customer. The business implementation includes preparing the business for the system through training, user acceptance tests and general communication to the organization. The customer can if needed request consultants to help them with the business side of the implementation as well, but the consultants will then not be a part of the fixed price and instead be paid on an hourly basis. A setup like that eases the communication, but the consultant on the business side is not a part of the IT implementation in the project.

The respondent refers to the business implementation as the "mirror organization" since it ideally should look the same and have come as far as the IT implementation in the project. Generally, CapGemini makes sure that the project plan for the business is exactly the same as that of CapGemini. According to the respondent the business side usually lacks the experience to develop a plan good enough to fit an ERP implementation. Since Norling has been on both the technical side and the business side of ERP implementations she can see the differences. On the business side they aren't controlled by the cost as much and instead focus lies on what customers that needs to be informed, what users that needs to be trained and perhaps which employees that needs to be discharged. The IT side is on the other hand very focused on the cost and the project is governed by budgets and delivery milestones. Other economical factors include reporting procedures, contract details, travel expenses and follow-up on each consultant's hours.

The rigidity of fixed price projects can cause problems if the business side of the implementation does not put in enough effort and resources in the projects. There are certain steps along the way that needs to be completed by the business side and if they aren't ready for it, the result is a lag where the consultants can't continue working. An example of this is the acceptance test in the realisation phase, where the business side has to approve the solution built by CapGemini. Since the plan initially agreed on then can't be kept, there needs to be negotiations on how the wasted time should be compensated. According to the respondent situations like these always occur and how they are resolved depends on the relationship with the customer and the extent of the lag. Situations like this doesn't occur in projects managed by the customer themselves, since the consultants then gets paid by the hour.

The problem of the business side underestimating the time and effort it takes to implement an ERP is common according to Norling. An example of this is if the implementation involves simultaneous rollouts on two different sites in different countries. The customer might then think that one projects group is necessary, while the wish from CapGemini is that also the

business side chooses to have one project team at each site. Ideally, the relationship between the IT side and the business side should be 1:1, meaning they would spend an equal amount of time and resources on the project. Often there is an idea from the business side that the individuals involved probably can perform their normal tasks as well, though with less intensity.

“The customer often believes that they can probably perform their normal tasks at 30% or so, maybe more”

The result of not full commitment to the project is consultants that can't move forward since many activities are dependant on the completion of another activity. These bottlenecks result in consultants that can't move forward in the project and cost money. The fixed price remains the same regardless of inadequate efforts, but the quality of the rest of the process and the end result is deteriorated.

Underestimated need for resources is primarily present during the training and testing, when the business says there is no time for the employees to take time from their normal duties. If the system isn't tested enough, the business might end up with a system that fulfils the requirements but the requirements themselves might be incorrect. Without adequate testing and training, mistakes like this aren't spotted in time. CapGemini have a hard time noticing flaws like that, since they basically test what they have developed, which is developed in accordance with the requirements. Norling means that it's a big advantage if the business side appoints a project manager that previously has been involved in IT projects. This means that there is a better understanding of pros and cons, pitfalls and how the staffing of the business for the project should be done. This way they are better prepared for the extra strain the implementation puts on certain aspects of the business and when or where extra personnel is needed.

5.4 Customization (P2)

The question whether to customize the system to fit the organization's processes or to accept the suggested best practises embedded in the ERP was not a new one to the respondent. The advice from CapGemini is always that it's cheaper to change the organization than to change SAP. CapGemini tries to get the business to realize that a big change is incoming and that they should use Change Management to cope with the new processes. Not only is it cheaper to stick to SAP's standard as much as possible, it also greatly simplifies future updates of the system. If something has been modified in the original system, work must be done when ever it's updated in order for the modification to still function.

However, Norling admits that there is always some form of customization that needs to be done. The most common form of customization is alterations that need to be done due to legal reasons. In the projects the respondents have participated in these reasons have for example been requirements that different business units are clearly separated and country-specific accounting laws. There is also one type of customization almost always needs to be done to some extent, to make sure the ERP system works with other systems that it needs to be integrated to. In one of the projects Norling participates in the customer wants to keep their old inventory management system, meaning that it must be integrated with the new system. There is also the possibility that the client had integrated their old system with significant customers, suppliers or other stakeholders. That integration must work even when SAP has been implemented.

The respondent states that in fixed price implementations there is seldom a great deal of Process Management from the consultants. In these projects they have a strict budget to follow and unless they are getting paid for it, no consultant should get really involved with the customer's processes. However, there is also the possibility that the business specifically asks for process management. While CapGemini have the needed expertise, it's generally not included in fixed price implementations. The consultants do get some degree of understanding of the customer's business through the workshops in the GAP-phase but in a fixed price implementation their primary objective is always to deliver a functioning SAP solution on time and within budget.

The focus on processes is bigger on the customer's side of the implementation according to the respondent. Hopefully the customer has appointed people that are 100% dedicated to the project who can spend many hours on Process Management. From CapGemini's point of view there is a distinction between the soft skills needed for Process Management and Change Management and the technical skills needed for the IT part of an ERP implementation. Fixed price implementations always focus on the latter while the Change Management process is handled by Consulting Service or by the customer in the mirror organization. One aspect of Process Management Norling recognises is the process of examining the internal structure of a business. This is however long before the actual implementation process starts and is one step in deciding what the organization really needs.

"Then you haven't even come to the beginning of the process to implement something. You are on the company's smorgasbord where they look at their business and find out where they need a change, what needs to be replaced and what they can do about it."

The respondent says that the modules in SAP correspond to different processes in a business. What processes that are going to be affected by the ERP are determined by the business before they invite tenders. That's essentially what a "Deliver" project provides, it provide the tools to change the processes that by the business beforehand have been selected to be changed. Without any statistical evidence, Norling believes that the modules that are most common are Finance, Sales distribution (that corresponds to the process of Order to Cash), Material Management (Purchase to Pay), Customer Relationship Management (CRM), Human Resources (HR), Tech areas (Development) as well as forms and migration tools. The workflow module in SAP is not among the most sought after, but Norling says that they generally always have a few workflow consultants in their implementations. The workflow module links together a series of manual tasks and automates these into a single process.

5.5 Reasons for adopting ERP

On the question whether the goals of the implementation are clearly communicated to CapGemini or not the respondent answered with a definite "yes". In a fixed price it's vital that this information is relayed since it forms the basis on which the business invites tenders. It's then up to consulting companies to submit offers and in order to do this the goals and what the organization wants must be clearly specified. The respondent notes that while business managers usually are good at giving the consultant company information about the goals, the same information is rarely communicated in a sufficient way to the business. Exactly how the goals are expressed varies from project to project, but in the end it always comes down to save or earn money. Goals expressed in organizational process factors are indeed common, most often in terms of standardizing or speeding up processes to create organizational unity. Enhancing processes in this way can for example lead to removal of job positions or faster invoicing, but in the end it's the money saving behind this the business seeks.

The specific goals with an implementation also vary depending on what industry the business is in and what size the company is. A recent client had acquired a lot of smaller firms, each with their own system. Centralization was needed and the ERP provided just that and also meant system administrators could be under the same roof instead of spread all over the subsidiaries to handle local systems. Legal aspects are also often a factor, for example the division of certain business units or requirements on accounting. Some clients also state that the ERP will help them expand their range of products or services. Many companies also acknowledge that IT expenses will be more manageable since an ERP system more easily can be updated, it replaces old legacy systems and makes it easier to incorporate new business units.

5.6 Resistance

It's not uncommon that some resistance from the business is encountered in the workshops conducted in the Gap-phase. While there often are many that see the new system as an opportunity to gain competence and experience, there are some that oppose it with the argument "the old system works fine so why do we need a new one?" The respondent thinks that the level of resistance also is affected by the interaction between the consultants and the future users in the business.

"If you wear an expensive suit and act overly business-like when you enter a business filled with people in 'normal outfits', then you will face resistance regardless of what the technology brings."

The next source of resistance is the next real contact with the system for the future users, the acceptance tests in the Realisation phase. The reason here is often that the planning has been indistinct or the GAP document being approved without the business really understanding what they accepted. To avoid this obscurity it's very important that the business invest enough resources and time in the project. Another situation where resistance can be an obstacle is that despite the workshops, the individuals in the organization don't really comprehend that they're going to change system. They instead realise it just before Go Live, when the system change is imminent.

6 Company B

The data was collected through an interview with Lars Kristoffersson who works at a company implementing ERP systems. The collection and reporting follows the propositions stated in the introduction to ensure that the data was usable within the problem area. The functionality of modules close to workflow management is included in order for comparison with the theory of BPM.

6.1 Respondent and Company Presentation

Lars Kristoffersson has a degree in Informatics and has after that worked as programmer, system developer and consulting manager. Before the current re-structuring in the company his job titles were Customer account executive and Practise director. He has worked at the current company since 2001 and the main duties the past years have been meeting with already contracted customers, not new ones. Kristoffersson's company works internationally with development, implementation, user support and maintenance of their ERP system.

6.2 Implementation Methodology (P1)

The implementation methodology is divided into three phases; Define, Establish and Execute. To put it simply, an implementation follows the names of the phases where you first define the change, then establish the change and finally puts it to practise. All the phases include activities based on the aspects of project management, processes and structure, people and IT environment as depicted in figure 6.1 below.

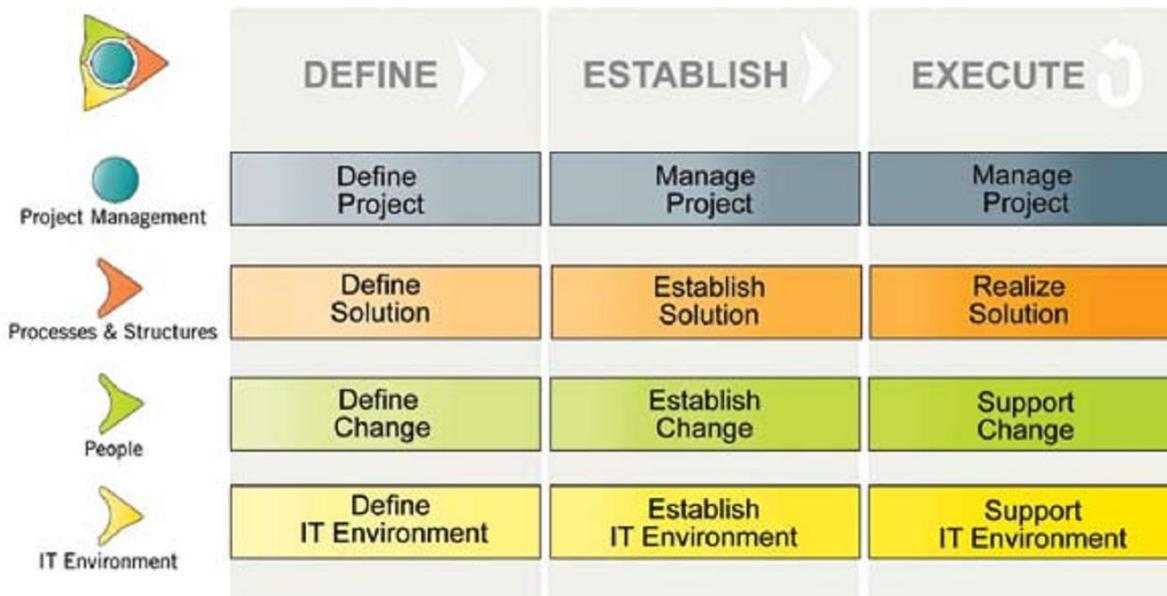


Figure 6.1 Implementation Model Company B (Internal Document 1, 2007)

- *Define*. The define phase is sometimes referred to as the sales phase, but that is something Kristoffersson has objections to. According to him sales is explaining to the customer what their system can do, while in the define phase you are actually inside the customers organization to measure the possibilities. They let their software and its models meet the customer's processes and figure out what needs to be done for a match. An estimate from Kristoffersson is that the define phase takes up to 25% of the total project time and usually spanning between 10% and 25%. The main output of the phase is "Statement of Work", a

document that defines roles, responsibilities and the scope of the project. It shows the expectations from both sides and how the implementation work should be conducted. Kristoffersson makes the comparison to an architect drawing a house, where the blueprint states what is needed and what the end result should look like.

“It’s kind of like when an architect draws a house, the Statement of work is the blueprint with what it takes, all the strength estimates and so on. The document clearly states how we think.”

Project plans and budgets are also established in this phase and list the planned activities throughout the project. Another activity is to create a learning strategy and initiate training early on to get IT specialists and end users up to speed on the application. Related to this is the use of a demo, a pre-configured alpha prototype to give the organization a glimpse of what the system looks like. The phase also results in an IT solution description that defines the IT environment and what the solution will look like in various stages in the project.

- *Establish.* According to Kristoffersson this phase is what many sees as the actual implementation project. It is therefore also the longest phase, not seldom representing 75-85% of the total project. The output from the define phase is passed on to the solution consultants in order for them to understand what is to be done in the project. For further clarification workshops are used to give the consultants an understanding on how the business operates. The consultants meet with the respective process owner to confirm details regarding his or her process area. A prepared set of questions is used to get the information necessary and is then compared to the Statement of Work to validate the business needs.

“Then we have ‘establish’, what many sees as the actual project, when we take the software and start to screw it in towards where the customer wants it.”

The confirmed information from the business process surveys is then used for building a beta prototype. Throughout the prototyping each version is validated by the business before the next is built. An acceptance test confirms that the solution meets what was described in the Statement of Work. To make sure the process owners, project team members and end users are able to use the ERP in a good way, progressive courses are offered through learning camps, workshops and learning labs.

- *Execute.* This is the shortest phase in the implementation and seldom represents more than 5% of the total time. The final goal is to get the system up and running and making sure it copes well with the organization and vice versa. Some of the activities in the Establish phase continue into the Execute phase, primarily testing and training. Process owners and key users here test the system with a full database to approve the performance of the configured solution. The training focuses more on the end users led by the business project team, but the consultant company provides training plans, job instructions, learning simulations and course evaluations. The final full-scale test then takes place with each end user at their normal workplace to make sure the system works in the business’s IT environment.

The activities in each of the three phases in the implementation methodology are summarized in figure 6.2.

Define	Establish	Execute
Statement of work	Workshops	Full-scale test
Project plan & budget	Business process survey	End user training
Learning strategy	Prototyping	Go live
IT solution description	Project member training	Project closure
Demo	Acceptance test	

Figure 6.2 Summary of activities in Company B’s methodology

The methodology is supported by five ongoing activities in the form of Project governance, Quality and Risk management, Project management, Change control and Data migration. Project governance means to clearly define the roles and structure of the project organisation. Quality and Risk management is concerned with performing quality audits of project deliverables and performing risk assessments. Project management is done primarily by a web-based environment that keeps track of versioning, issues, customizations and change requests. The change control means ensuring that each change is approved by the appropriate authority and that the changes can be directly linked to the Statement of work. The data migration start in the define phase with a data review and a migration strategy is then developed and used during the remainder of the project.

6.3 Project Structure and Payment (P3)

Kristoffersson’s company very rarely sells fixed price implementations and instead bill the customer per hour worked. They do use a target price and ceiling price, where they estimate the cost for the implementation. If the running cost exceeds that price by 15%, they put the implementation to a halt to investigate what led to that situation. This is according to Kristoffersson not something that always has been done in the IT business, where many projects often kept on going despite exceeding budget. Unlike many other ERP vendors, Kristoffersson’s company is a “one-stop shop” that both develops, implements and takes care of the maintenance of the system. Kristoffersson means this brings them closer to the customer since no third party is involved.

At the top of the organizational chart for an implementation there is a steering committee that is in charge of the implementation. The contribution from the ERP company is the allocation of a role called Project Executive and the rest of the steering committee is made up of managers from the customer. Underneath the steering committee are two projects, one for the ERP company and one for the customer, each having a project manager from the respective company. According to Kristoffersson it wouldn’t work to have a manager from his company in charge of the business project group.

“We can’t put a manager from our company as project manager for their project, we can’t be inside and poke in their organization.”

The two projects don’t necessarily have to be symmetrical and the shape is determined by which processes that are taken care of. Generally, the sub-units in the projects correspond to specific processes that a certain part of the system will handle. Each of these units has a super user, who is responsible for the business implementation of that process. The ERP company can on the other hand have the same person responsible for two or more processes, thus making the two projects look dissimilar.

While they are separated on paper, Kristoffersson means that there are several ongoing interactions between the two sides. It starts in the define phase where business meetings take place in order to see if the ERP system fits the customer's needs. Once an agreement has been met, work meetings and decision meetings take place both on an overhead level and on detailed process level. In the establish phase meetings take place to make sure more knowledge and understanding is granted about the customer's processes in order to configure the ERP accordingly. When the configuration is ready, a pilot test is done to make sure all the processes are on a parallel level in the project. A full-scale test then is then done to make sure the processes and modules interact with each other as planned.

The problems encountered in implementation projects are of the same nature as any company in the IT industry faces. There can be a discrepancy in the expectations on the outcomes of the project, where the customers often have too high expectations on the system. To solve this issue it's very important to early on make sure all expectations are expressed early on in order for both parties to get a common understanding of what the system will provide to the organization. Kristoffersson means that in order to get a satisfied customer you have to deliver what the customer expects and to do that you have make sure the expectations are on a reasonable level.

6.4 Customization (P2)

On the topic of customization, Kristoffersson points out the difference in customization in terms of changes to the system and customization through in-built options. He says that their system includes a multitude of settings for the customer to change according to their wishes. These settings fit within the standard system and do not require any modifications to the actual software. The ERP also includes a special tool where the customers themselves can do all these "comfort adjustments" that previously needed to be done by the consultants in the implementation. When it comes to modification of the actual system, Kristoffersson says that many of the customers have realised that it's really expensive. This involves additional software development or changes not covered by the standard system. In fact, he says that it's not uncommon for the customers to have zero tolerance against modifications of this kind. They've realised that it's not that expensive the first time, but any upgrades to the system means that the modification needs to be done again. These modifications are not covered by the maintenance fee paid by the customer. There are however times when modifications to the software are done, especially when the customer has something that is significant to them and enhances their competitive ability. Kristoffersson says that despite what is written in the scientific literature, it's always easier to let man adapt to the machine than vice versa. The economic pressure in today's business favours those who can adapt to the conditions.

6.5 Process Management Functionality

The ERP system has a module called Process Flow Integrator which according to Kristoffersson is a tool for describing and modelling processes. The user can examine processes on different levels and for example look at a specific process in the manufacturing business unit. The process descriptions can be linked inside the ERP for helping users understand what it is they are doing. The Process flow integrator is to an extent used to initially model the processes to be but then serves its main functionality as documentation on how the processes function. It can also be used to share business process events with other applications and with clients, partners and customers. The module description says that it's a business process design and automation tool for choreographing and executing event-driven processes. It makes it possible to create an electronic workflow for activities usually

conducted by humans. It can also automate ad-hoc processes for common supply chain activities, making sure that the processes follow the business rules of the organization. There is a possibility for the user to adjust the automated processes through an interface with drag-and-drop functionality. This means the processes can be altered without needing to understand programming languages.

While the ERP actually has a module called Business Process Management suite, Kristoffersson says that its functionality doesn't correspond to the theory of BPM used in the thesis. The module mainly includes tools that are used to make the interaction with the system easier and tools for integration with other systems. One example is Ibrix, a tool that lets the user create customized web-based views that holds the desired data. This view then provides a direct link to a specific application in the ERP if the user wants additional information about certain data. Kristoffersson gives the example of a view that lists all invoices that were due yesterday or earlier. These are quickly listed with information on an overview level but if the user wants additional information on a specific invoice, clicking on it directs the user directly to that invoice in the ERP system. It gives an easier access route to the system and removes the need to enter the same data many times. Another tool in the Business Process Management suite is the Enterprise collaborator that acts as tool for sending data between different systems. It ensures consistency in the data and makes sure the database in both the sending and receiving system keeps their logical design.

6.6 Resistance

When asked if the consultants ever face resistance, Kristoffersson answers that the occurrence of resistance is a classical situation that often has to do with company leadership. It's often on some type of management level the problems or opportunities are spotted that result in the decision to implement an ERP system. They then approach ERP implementers with their strategic plan for the coming years and asks how the ERP system can support that. These plans and decisions are often understood and communicated to the head members of each business unit, but fail to reach the ones working on an operational level of the business. If this weak link is present in the business, it will affect the consultants in an implementation project as well. In the define phase, it's usually management involved in the decision process but when it comes to the establish phase it's often individuals lower in the organization that the consultants work with.

“Our consultants often get to hear ‘Why should we do like that? We’ve done like this for a hundred years and it has worked really well”

According to Kristoffersson this means that despite that they've met an agreement on management level, the consultants then once again have to convince the organization of the benefits with the ERP. According to him that shouldn't be a part of their job and should be solved by top management clearly stating what's going on, that it's their decision to implement the system and that the consultants are there to implement it. He admits that not even that is enough always since it also lies in the human nature to be sceptical towards change.

7 Discussion

The discussion relates the empirical findings to the theoretical framework with emphasis on the propositions. Similar activities in life cycles of BPM and ERP are discussed as well as what methods that might facilitate integration. Process Modelling is seen as the activity with the most potential of bringing the concepts close together and is therefore described in detail.

BPM in ERP implementation (P1)

Some might argue that combining ERP implementation and BPM isn't possible due to the difference in organizational level they are conducted at. BPM calls itself a strategic approach while an ERP is meant to enhance the operational functionality of a business. However, by looking at the concepts in the form of phases, both concepts can be found on a tactical level. The specific activities in each phase relates to tasks performed on a day to day basis, either by participants in an implementation project or a process manager. The decision to implement an ERP is backed up by strategic thinking according to Ross and Vitale (2000). Norling recognises this when saying that it's usually people on a higher level making the decision, but the actual organization doesn't find out about the plans until the implementation project starts. That ERP decisions often are taken on a strategic level is also stated by Kristoffersson, who means that the initial phase of their methodology is performed together with individuals in management roles in the customer company.

The actual implementation of an ERP is then made on a tactical level and when it goes live it greatly affects the operational level of an organization. Its base in Material resource planning systems further proves this, but with ERP's it's almost every operational unit that gets affected. In BPM, the actual management and monitoring of processes is on a tactical level where process owners can make adjustments to solve short-term problems like temporary bottlenecks. BPM initially focuses on the discovery, design, deployment and execution of one of organizations core operational aspects, its business processes. These processes are the same that is going to be affected by the ERP system, thus making it possible to use BPM in an ERP implementation. The life-cycle match can be shown by describing the similarities between the phases in BPM and the phases in ERP implementation:

- *Discovery.* To find out how something is done or how it can be done can be seen as one of the earliest activities in the preparation for implementing an ERP system. It actually falls outside two of the theoretical frameworks and the method used by CapGemini as well, but the activities to perform an internal inspection to find out what is needed is recognised by Norling. She means that when a business is performing those activities, the process of actually implementing hasn't begun. This phase can therefore only really be connected to ERP if an ERP system is decided as the way of putting the process change into practise. This means activities like setting up preliminary goals for the implementation and evaluating different ERP vendors. These activities are found in the planning phase in the framework presented by Parr and Shanks (2000a).

In company B's methodology the business processes are communicated to the consultants in the first phase in order for them to understand what the business really is. Activities of this kind are suggested by BPM, but the theory is more concerned with the business itself performing process mining. If the business itself has a poor understanding of its processes, relaying that information to the consultants becomes a difficult task. Since the activities aren't included in CapGemini's method and not found in Ross and Vitale (2000) or

Markus et al. (2000) the connection of this phase to ERP implementation is questionable. However, the introspection of the business most likely means that the project has started, at least from the business point of view. For an integration of the concept to function, the process mining and discovery must be done by business first and then communicated to the consultants.

- *Design.* Smith and Fingar (2007) means that the main activities in the design phase are modelling, manipulation and redesign of business processes. This is to be done using a modelling notation understandable by business analysts and thereby cutting of the long chain from requirement specification to executable code. The design phase in BPM in many ways corresponds to the design phase described in ERP frameworks and to the GAP-phase presented in the study. It can be argued that since an ERP system comes with a predefined set of processes, why and how should these then be modelled? The answer lies partly in what Parr & Shanks (2000a) describes in their “Re-engineering”-phase where a mapping should be done between the current business processes and the functions of the ERP. This way the result of the modelling is not only a picture of what the end-result will look like but also a description of what it is that needs to be changed. This is what Norling described taking place in the GAP-phase, where the differences between the organization and the system are dealt with. Combining the design phase from BPM with design phases in ERP implementation may well result in a long and cumbersome phase. This is due to the fact that it’s not only the processes that need to be designed, it’s also the mapping to the system and the design of the system itself. This means the modelling is three-tiered and becomes essential in ensuring a fit and making sure the business learns what the change will be like. It puts the business closer to the system in the implementation phase and can continuously make informed design decisions together with the consultants.

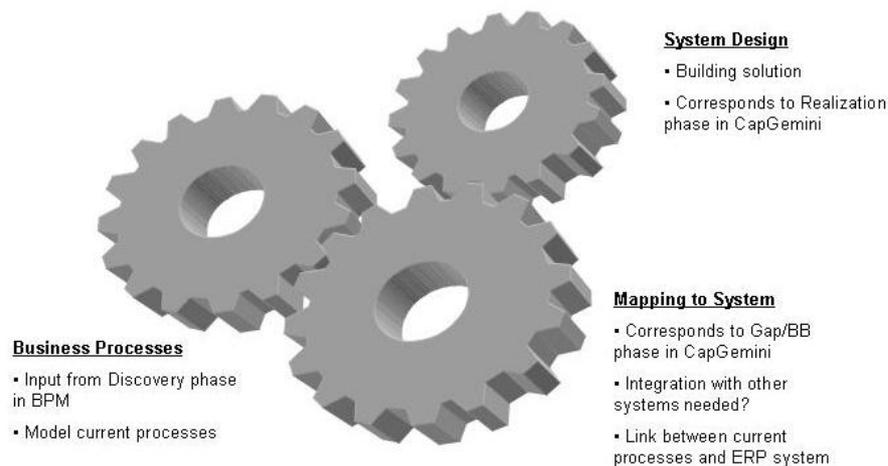


Figure 7.1 Design activities in BPM and ERP implementation

The choices proposed by Ross & Vitale (2000) about process change and process standardization very much affect what modelling effort is needed in the implementation. These decisions will determine to what extent the system needs to be customized. The taxonomy by Parr and Shanks (2000b) is useful when determining if BPM can play a beneficial role in ERP implementations. Vanilla implementations, which involves few sites and adoption of the process suggestion embedded in the ERP require less modelling since there is no mapping and no major design of the system solution needed. On the other

hand, implementations that falls under the “Comprehensive” category that involve multiple sites in different countries and a lot of modules mean a much bigger change with more people and business units affected. The possibility of accepting the process proposition in the ERP diminishes due to the different local processes that have formed, the large number of people affected and because of different laws as pointed out by Norling. The need for customization increases in order for the ERP to work with existing core processes. In large implementations there are usually a need for integrations, either with necessary legacy systems or with clients and suppliers. This adds up to all three modelling activities being needed; design of processes, mapping of processes to the system and design of the system itself.

- *Deployment.* While the description of deployment by Smith & Fingar (2007) is that the process is rolled out automatically to all participants, they also mention it to be a preparation for the execution. By preparing integration with legacy systems or external systems the transition to the new process goes through with little friction. The phases described in the study of CapGemini’s method include a phase of final preparation, where the business makes the last adjustments before the system goes live. Norling mentioned that integration with old systems or other stakeholders systems aren’t uncommon when implementing ERP systems. The deployment activities in BPM could be used to make sure these integrations work when the system finally goes live. A step in that direction can be seen in the Business process management suite in Company B’s ERP system, where an enterprise collaborator is used to communicate with other systems in the organization. By using such a tool, all other systems could prepared for the launch of the ERP system.
- *Execution.* When all preparation is complete, the new process is executed with the help of a process management system according to Smith & Fingar (2007). However, the execution itself is all about setting the process in motion and making sure all participants can fulfil their tasks and have the necessary resources allocated to them. The execution is the equivalent of the go live of an ERP system, which in effect means that all the new processes are used.

While the comparison shows that the initial four steps of BPM can be combined with an ERP implementation, there is no match between the remaining steps and the project of implementing an ERP system. Interaction, monitoring and control, optimization and analysis emphasises the “management” in BPM and has to do with the ongoing work of supervising and enhancing business processes. It can be argued that the Shakedown and Onward and upward phases of Markus et al. (2000) describes these activities in an ERP context but what it does is really stating the obvious, that there is a time of ups and downs after implementing an ERP. Both the Ross and Vitale (2000) and Parr and Shanks (2000a) frameworks include similar phases labelled Continuous improvement, Transformation and Enhancement but also they lack specific description of activities. The descriptions of those phases are more concerned with organizational change and that the business should “be one with the system”. The last step in the CapGemini method is Go Live support, where adjustments to the system or extended training for the users are the main activities.

When it comes to maintenance and management of the processes, that is not a part of the implementation. The rest of the phases in BPM can therefore not be said to fit in an ERP implementation. However, that is not to say that an ERP system can’t facilitate these activities of managing business processes. It’s beyond the scope of this thesis to investigate that further,

but the fact that most ERP system has a workflow module and that BPM is based on Workflow Management makes it a possibility worth investigating. If it should prove to be possible, the third wave of Process Management could be built upon the ERP technology of today. The Process flow integrator module in Company B has the functionality for process modelling and process description as described by BPM theory. It however lacks the functionality for management, monitoring and diagnosis which also is stated as the difference between WfMS and BPMS by van den Aalst et al. (2003).

The match between the phases of ERP implementation and BPM relies on one big assumption. While Smith and Fingar (2007) continuously couples BPM with specified technology in the form of BPMS, that kind of technology is not a necessity for the discovery or the design parts of BPM. In fact, van den Aalst (2003) and Netjes et al. (2006) do not involve IS until after the design, in the enactment phase and execution phase respectively. What this means is that in order for the proposed match to hold, the decision to use ERP as the IT solution of choice must be taken already in the discovery phase of the BPM life cycle. Doing this does not contradict the BPM frameworks, but it would mean a need to make ERP the preferred choice for businesses conducting BPM or to make sure ERP is easily integrated with what ever tools used to model processes. If this isn't done, the three tiered design in the combined design phase would not deliver the benefits it provides by simultaneously handling all of the three linked designs.

Process Modelling

Process Modelling and the use of BPML is an essential part of the use of BPM in ERP implementations. Using BPML means that the new processes becomes understandable by the business and individuals from the business side can take bigger part in the designs of the processes, customization of the system and the mapping between them. It can greatly help in reducing the errors in the Gap document, which later becomes a source of resistance according to Norling. This could be resolved since there no longer would have to be a consultant trying to understand what it is the business really want the new system to do. Instead, the business side could themselves learn BPML and model the way they want their business to work with the new ERP system. The mapping of the current processes to the system could be done by the business and the consultants together. After those two design activities, the consultants could then design the system solution with the help of BPML, making the final solution understandable by the business that then better could target their training and prepare for the transition.

The process flow integrator in Company B's product claims to have a functionality for process modelling where a notation is used that requires no computer language skills. The actual module hasn't been investigated further in the study, but the descriptions opens the door to use that same notation for supporting the full BPM cycle. A possibility is that the workflow modules of today get reworked into having the same functionality as a BPMS, resulting in a BPM module. To fully facilitate the BPM approach, the next step would be to use the BPM module from the start in an ERP implementation. In doing this, it becomes a tool for the implementation of the ERP system by providing modelling possibilities as well as a tool for managing processes after the system has gone live. Since it's already a part of the ERP system, the BPM module would handle the deployment of the new processes in the way a BPMS would do, as suggested by Smith & Fingar (2007).

Customization (P2)

Both the literature review and the interview study showed that the general advice from implementers is that it's cheaper to change the organization than to change the ERP system. Norling specifically says that "our advice is that it's always cheaper to change the organization than to change the system". Kristoffersson agrees by saying that despite what the researchers has said for the past 25 years it's easier to adapt man to the machine than vice versa. Nah et al. (2001) lists minimal customization as one of the CFSs for successful ERP implementation. All these notions violates the idea of BPM that the business should be in control of its IT and processes not vice versa, as stated by Smith and Fingar (2007). Minimal customization in other words means that the process suggestion should be accepted, meaning that the ERP system will govern the business processes of the organization. This attitude from ERP implementers lowers the possibility to use a BPM approach to ERP implementation. It means that not only the business needs to be convinced to perform customization and process modelling, the implementation consultants would need to be convinced as well. Furthermore, Soja's (2008) study showed that the most common goals with ERP implementation were of economic and technical nature. If the business itself rarely see organizational aspects like improved processes as main goals, it's understandable why consulting companies don't give it much attention either.

Project Payment and Organisation (P3)

The very foundation of BPM is that it should remove the gap between the business and its IT, in essence giving the control of the systems back to the business in order for them to quickly be able to react to changes in the market. In the study it became clear that in fixed price implementations in CapGemini, there is a rather strict division of the IT side and the Business side of an implementation. The main part of integration between the two is in workshops in the design phase, where the consultants tries to make sure that the Gap document or business blueprint is really illustrating what the business wants from the implementation. These workshops provide an opportunity for process oriented work, where individuals from both sides could come together and design the mapping between the business processes and the system. The business side has a good understanding of how they want their business to work and the consultants know what processes the system has to offer. BPML would provide a way of understanding each other and increasing the chance that the end result is satisfactory for all parts.

The study however shows that a division of technical implementation and business implementation is not significant for fixed price implementations. Also in company B, where the consultants costs per hour, there is a division into two projects. One way of conducting implementations in accordance with BPM would be to make sure the IT supports the processes or at least make sure that the business is very well prepared for the and have accepted the changes imposed by the ERP system. To achieve this it's necessary to let the business and the IT sides work close together, so the business has full control of how the ERP will function as well as over any customization made. Implementations in practise today with a clear division between business and technical side do not provide the best conditions for that to take place.

8 Conclusions

The conclusions are the resulting answers to the research question posed in the introduction of the thesis. The implications suggest practical measures that can be taken to follow the conclusions and also represent the practical lessons that can be learnt from the thesis. Proposals for future research is the result of the open ends that were encountered in the study but fell outside the scope of the thesis.

The research question of the thesis is as follows:

- ❖ *What possibilities exist to integrate Business Process Management and ERP implementation?*

The resulting conclusions of the study are as follows:

- There is a fit between the activities in the first four phases of BPM and ERP implementation.

The discovery, design, deployment and execution of processes are possible to integrate with activities in an ERP implementation. The final step of an ERP implementation is taken a short time after the system has gone live and is in many ways similar to the execution of processes in BPM.

- The main activity that can connect the concepts is Process Modelling using a notation understandable by individuals in the business and that corresponds to immediate changes to the system.

By using a modelling language like BPML in the process modelling, users can more easily understand and have more control over how the ERP system will impact business processes. To let the business be a part of the actual process modelling and customization of the system could make sure the end result matches the expected result. It also means that the gap between business and configuration of IT systems is obliterated, a central idea of BPM.

- The attitude towards customization is an inhibitor to the use of BPM in ERP implementation.

Changes to the system in form of customization are both in the literature and in the empirical evidence shown to not be recommended. The organizations themselves also rarely state organizational factors like improve business processes as one of the main goals of the implementation. The fact that none of the involved parties puts emphasis on process management means that the interest for a BPM approach to ERP implementation is moderate at best.

- The division in implementation projects today limits the possibilities for a BPM approach to be used.

In both project organizations in the study there is a separation of the technical project managed by the consultants and the business project managed by the organization. While interaction activities such as workshops could facilitate process modelling to map the system

to the organization, there is not constant participation by the business side in the customization of the system. This means that the work chain starting with business analysts and ending with programmers are used, thus the gap between the business and the system persists.

8.1 Practical Implications

The practical implications of the thesis are hard to establish since it were only the possibilities for an integration that was investigated. The very purpose calls for further research rather than action taken by those working with ERP systems. However, the conclusions show a specific activity that can be used to reduce the impact of ERP, namely Process Modelling. ERP implementers wanting to focus more on processes could involve extensive Process modelling in their methodology. In regards to the manner of payment, it has been shown that the possible use of BPM in ERP implementation requires a close collaboration between the business and the consultants. Therefore the practical implication for ERP implementation consultants is that the project structures of today are too rigid to support BPM.

8.2 Future Research

The suggestions for future research could act as propositions in studies regarding a connection of BPM and ERP implementation.

- Research the possibilities to include the remaining five steps in the BPM life cycle in the actual use and functionality of an ERP system.

Only the first four phases in the BPM life cycle was found to be possible to integrate with the implementation project of an ERP. To draw conclusions on if ERP can be used to fully support BPM, research must be conducted on the actual functionality of the system, not only the implementation project targeted in this thesis. However, the connection between WfM and BPM has been briefly described, suggesting that an investigation of the possibilities to extend the current workflow module in ERP systems to include functionality that supports BPM.

- Develop a comprehensive methodology for ERP implementation with focus on process management.

The thesis has shown that the four first phases in the BPM life cycle can be matched with activities in an ERP implementation. The next step could be to create a new framework for ERP implementation that includes activities found in BPM. The result would be a methodology that from an early stage focuses on processes and gives the organization the ability to take active part in the mapping of the system to the business. This could provide a better understanding by individuals in the organization how their work will be changed once the system is implemented and hopefully reduce resistance.

- Research the topic taking specifically a business point of view.

While the study in itself focuses on the phenomenon of ERP implementation from a neutral point of view, the empirical evidence has been collected from consulting companies. Conducting a similar study but with empirical evidence based on data collection from the actual business that will use the ERP system could end in different conclusions. However, it also open up for a wider range of organizational factors like structure, culture, attitude to change and willingness to participate in IT-related project.

Appendix 1 – Interview Guide CapGemini

Allmänt

- Berätta om dig själv yrkesmässigt. Titel? Arbete? Karriär?

ERP implementation

- Vad brukar anledningen vara till att era kunder implementerar SAP?
- Vilka olika faser särskiljer ni vid en implementering av ett affärssystem? (P1)
 - Hur länge varar faserna?
 - Vilka är aktiviteterna i de olika faserna?
 - Vad är viktigt att fokusera på? CSF?
 - Vilka problem uppkommer i de olika faserna?
 - Hur utbrett är motstånd som ni upplever det? Orsaker? Form?
 - Fortsatt kontakt efter utrullningen?
- Ser det likadant ut för era kunder eller brukar fler faser finnas för dem? (P1/P3)
- Vilken typ av implementering är vanligast, sett till antal moduler osv? (P2)
- Vad är generellt ert råd gällande customization vs anamma processer inbyggda i systemet? (P2)
- Enterprise Application Integration? Sammankoppling med Legacy Systems? Migrering av data? (P2)

Process Management

- Använder ni någon uttalad processinriktad strategi?
 - BPM?
- Är fokus på processförändring något era kunder nämner mycket om? (P2)
- Berätta om Workflow modulen i SAP.
 - Funktioner?
 - Ingår ofta i implementeringar?
 - Förändrats mycket under de senaste åren?

Appendix 2 – Capgemini Transcript

Date: 2008-03-20

Location: CapGemini's office, Baltzarsgatan 31, Malmö

Respondents: Annica Norling (R1)

Interviewer: Niklas Idorn (NI)

NI: Berätta om dig själv yrkesmässigt. Titel? Arbete? Karriär?

R1: Ingenjör, kemi, civilingenjör. Jobbade kort som det i energibranschen i Malmö. Började på marknadsavdelningen sen som produktansvarig för värme och gas. Säljare i Lund, Lunds energi. Sedan Manpower, kundansvarig för teknik och logistik-delarna. Innebar kollektivtjänster i Malmö-Lund området, säljare kan man säga. Började som marknadschef på ett litet vindkraftbolag och efter det gick jag till Eon med produktansvar för värme och kyla i Sverige. Eon implementerade SAP då, start år 2000. Blev verksamhetsprojektledare för SAP implementationen gällande värme i Sverige, i Spegelorganisation till IT-delen. Kom till Cap via chefen i spegelorganisationen. Sen 3 ½ år nu på CapGemini. Enbart sysslat med SAP implementationer och i stort sett enbart med fastpris-implementationer enligt CapGemini metod som heter Deliver och grundar sig på SAP rekommenderade metod för SAP utrullningar eller implementationer.

NI: Då börjar vi mer frågor om affärssystemsimpliceringar. Vad brukar anledningen vara till att era kunder implementerar SAP? Berättar de det för er?

R1: Absolut. Det krävs för att när vi offererar till kund så görs det alltid i konkurrens med andra bolag. Finns ett antal konkurrenter. Hur vi lägger offerten är beroende av företagets mål. Är det enbart kostnad eller måste andra aspekter tas med i offerten? Målet måste kunna delges. Problemet är att de som utlyser/beställer implementationen är sällan duktiga på att vidarebefordra dessa målen till de som har hand om verksamheten och hanterar själva implementationen. Så beställarna har ofta tydliga mål men förståelsen i verksamheten där själva jobbet görs senare finns inte.

Det är också Olika beroende på vilken bransch. I energibranschen var det för att Eon köpte upp en massa mindre energibolag som alla hade olika små system, egenutvecklade eller något annat. Man ville centralisera kontoren och ta bort små kontor och centralisera till större kontor, så krävs det att man jobbar i samma system. Det är en besparing, att istället ha folk överallt som hanterar olika system så finns det kanske samlat på en avdelning. Legala aspekter, måste kunna hantera lagar, tex inom energibranschen måste man särskilja på nätdelen och försäljning. Även för att i marknads konkurrens kunna erbjuda kunderna olika typer av service och lösningar, ringa in mätarställning etc, eller maila. Produktutbud ökar när man går till större system. Man sparar också pengar på att ha ett stort system, när tex uppgraderingar eller göra nya lösningar. Lättare att då ha ett stort system och sedan bara rulla ut den nya funktionaliteten över ett större område. Ibland har företagen gamla system som inte underhålls, kundstocken rinner ut, få hanterar det, läggs inga pengar på uppgradering. Vad har man för val o framtid med det systemet då? Olika på olika företag. Telia som jag var på innan var ute efter besparing. Allt som oftast tror deras kunder att de kan spara personal och arbetskraft. Allting drivs av pengar.

NI: Får ni ofta höra Organisationella mål?

R1: Mnjae. Visst de kan uttrycka det i att processerna skall gå snabbare men i slutändan är det ju ändå pengar du sparar. För att du till exempel kan ta bort vissa tjänster, centralisera. Visst man kan uttrycka det på olika sätt, men det handlar i slutändan om att tjäna pengar. Enhetliga processer, snabbare processer. Enhetliga processer ger snabbare fakturering, allting blir standardiserat. Det tjänar man pengar på.

NI: Okej, då går vi in på er metod. Vilka olika faser särskiljer ni vid en implementering av ett affärssystem?

R1: [Pratar långsamt samtidigt som faserna ritas upp på en whiteboard] Först en Pre-plan fas, sen GAP-fas, sen REA fas, final prep-fas och sist en go live support. Detta är CapGemini's namn på faserna som baseras på SAP:s metod. På IT-projektsidan så innebär GAP-fas är väldigt mycket med kund, kunden måste hjälpa till mycket då. Realiseringsfasen går vi in i sin kammare. I alla faserna ligger också migrering, det är ju migrering vi gör i slutändan.

I Preparation-fasen förbereds uppstaren av projektet. Är det en helt ny SAP implementation på ett nytt företag så är denna väldigt lång. Är det en utrullning, så är ju första gången väldigt lång men sedan kör man samma utrullning på olika sites i olika länder (kanske) så de respektive prep-faserna blir då lite kortare. Men pre-preparation är förberedelse, sätta team medlemmar, bemanning, vilken dokumentationsstruktur man skall ha, vilka lokaler, vilken infrastruktur till vad har vi för leverabler i nästa fas och förbereda dem. Sätta upp budgetar, ekonomiska modeller, uppföljningsverktyg, staffingrutiner, sätta upp lönsamhetskalkyler när vi tar in både intern och extern personal. Väldigt olika beroende av vilken typ av projekt det är. Det är en förberedande fas.

GAP-fasen där vi definierar scopet, vad är det vi skall implementera? Antingen så är det så att det finns en standard template, tex en global template som finns på plats. Den skall då rullas ut i ett antal länder tex. Är det så så innebär denna fasen att du går ut i olika sites, tar med dig den globala templaten, serverar den till verksamheten, så här ser den ut, passar den er eller har ni några legala krav i era länder som gör att vi måste göra en nyutveckling eller modifiering på templaten eller lägga till någon funktionalitet? I det projektet jag driver nu så är det baserat på en direct invoicing template där de går ut och i GAP fasen i olika länder gör olika workshops. Dessa läggs ut i de olika processerna. Order2Cash, Purchase2Pay, Service2cash, Finance2Manage och Tech. Har ett antal workshoppar beroende på bredden av projekten och i slutändan så är leverablen i slutet av GAP-fasen GAP dokument eller ett Business Blueprint. Business Blueprint är vårt recept kan man säga. Om du har ett GAP dokument så presenterar det gapen, skillnader mellan orginaltemplate och det som behövs här. De är lika, GAP och Business Blueprint, men lite olika. Business Blueprint är recept, ”det här skall vi göra”. GAP beskriver skillnader jämfört mot någon template man har längre bak i de här länderna det skall rullas ut. Workshoppar tillsammans med verksamheten. Sen skall Business Blueprint godkännas av verksamheten, håller ni med om att det är detta vi skall implementera?

Realiseringsfasen är byggfasen. När vi väl vet vad vi skall bygga efter GAP-fasen så går vi lite in i vår kammare. Sen bygger vi, konfigurerar och utvecklar. Bygger lösning. Innan vi går in i nästa fas så är all test inkluderad också. Testerna ligger antingen inkluderade i realiseringsfasen eller final prep fasen, lite olika. Spelar inte så stor roll. Testerna består av tre olika miljöer.

[Ritar även upp dessa på whiteboard]

Unit test. Testar precis den lilla funktionalitet de har byggt. Efter att ha byggt ett steg så testar applikationskonsulten den direkt utan att se den i sitt sammanhang. Bara testar det byggda steget. Integrationstest. IT-projektet testar igenom processerna/förfarandena, tex lägga en order som skall trigga en faktura som skall kollas av i böckerna osv. Hela processer, görs i en annan miljö. Endast IT, Capgemini som gör det. Går sedan till kund och säger: ”nu har vi testat det baserat på de olika processerna som vi skulle bygga, nu är det er tur att testa om det verkligen motsvarar era förväntningar. Nästa steg då Acceptance testsom görs av kund. Om de säger ok så går vi in i final prep fasen som är en cut-over fas. De tre testen kommer sekventiellt. Bygger, testar av det lilla, sen testas processerna och därefter testas verksamheten processerna!

Final prep fasen som är en cut-over fas, det är där vi växlar det gamla systemet mot det nya genom ett antal aktiviteter i en viss följd. Aktiviteter för både kunden och oss. Kan till exempel vara sluta lägga order i det gamla systemet, notera order på papper tills nya systemet är på plats. Stäng ner lagret i det gamla systemet, inventera lagret i gamla systemet så att migreringen blir bra. Det är migrering de gör i slutändan i fasen när de migrerar data, flytta data från en burk till en annan. Denna migreringen har de testat i de tidigare testfaserna, samma migrering som de skall göra har de redan gjort en gång under realisationsfasen. Testat så det verkligen går att flytta, modiefira och bygga nya system. Leverabeln är go live. Go live innebär att vi stänger ner det gamla och går över till det nya. Stänger ner aktiviteter i det gamla lite olika i tidigare faser också. De får tex inte lägga en order, inte skicka iväg men ta emot gods osv, olika aktiviteter. Men Go Live innebär att order registreras i det nya systemet och det används.

En viss tid efter projektet har vi en support och efter det blir det ”application management”, som är ordinarie support till företaget, beroende på om det är vi som driver supporten till företaget.

NI: Jag tror du fick med svaret på alla mina följdfrågor där också. I Vilken fas anser ni er ha mest problem? Var är det jobbigast och var stöter ni på mest motstånd?

R1: Viss del när vi gör workshoppar med kunden, vissa kunder/personer är mycket positiva för det kan faktiskt innebära att de får ett uppsving i deras karriär om de lär sig det nya systemet och då är det extremt kul. Kan också vara tvärtom att de tycker de har det bra med det gamla systemet, vad skall de med allt det nya till? Har mycket att göra med vad det är för personer men även hur konsulterna bemöter dem. Det är jätteviktigt också. Om du kommer in på ett företag som inte är ”konsultvana” kommer in med värsta kostymen och är väldigt business-aktigt och så sitter det ett gäng människor i ”vanliga kläder” så har du redan där mött ett motstånd oavsett vad tekniken kommer att bära med sig. Du kan möta motstånd. Det är också ganska vanligt att de gör de här workshopparna men de har inte riktigt fattat att de skall byta system. Så det är inte förrän precis innan Go Live som de inser ”Fan, vi skall byta system och det skall ske nu, i nästa vecka”. Kan också möta stort motstånd i acceptanstesterna. Man har kanske varit väldigt otydlig eller godkänt en Gap analys utan att förstå vad det är man godkänt. Det upptäcker de då inte förrän acceptanstesterna, ”Men gud så här kan det inte vara”. ”Det här funkar inte för oss.” ”Men det är ju så ni har skrivit.” ”Nej, så kan det inte vara.” Beror lite grann olika på hur mycket tid och resurser företaget har lagt ner. Där de

aldrig möter motstånd är i Realisationsfasen där de går in i sin kammare och har väldigt lite att göra med kunden.

NI: Var ligger träningen och vem har ansvaret för den?

I det projekt som jag driver nu så ligger träningen på kunden och vi jobbar ju tillsammans i ett projekt med en spegelorganisation där Cap finns på en sida med projektledning och kunden på andra sidan med sin projektledning. Sen har de olika team inom Cap och likadant på kundens sida. På CapGeminis sida ligger ansvar för att leda IT-implementationen. Kundens ansvar är då träning, user acceptance test och då kommunikation till verksamheten. Det kan också vara så att träningen ligger inkluderat i IT-implementationen. Men ofta så följer kunden deras plan om så att tex träning kommer innan acceptanstester. Det är inte bra om den görs efter. Planeras in för att följa varandra, det får inte gå för lång tid så de glömmer. Ofta är det kunden som sköter träningen själv, men givetvis så hjälper Cap dem att planera in träningen rätt i tiden. Men det är ofta kundens ansvar, vilka människor, vilken nivå ligger de på och vilka processer de skall gå igenom.

NI: Ser den här projektplaneringen likadan ut för era kunder?

R1: Ja, definitivt. De är inte kapabla själv i princip. De kan kanske ha aktiviteter innan men verksamheten, de som implementerar detta, har inte. Många av dem har inte gjort detta förut och har därför svårt att göra någon förberedande. Väldigt, väldigt sällan de faktiskt får reda på något förrän beslutet faktiskt är taget. Och valet på vem man skall arbeta osv. Alltid, alltid samma projektplan som kunden.

NI: Vilken typ av implementering är vanligast, sett till antal moduler osv? Hur många moduler finns det i SAP?

R1: Beror på vad vill företaget ha. Vilka slags moduler de skall implementera väljer de innan de går in i rea fasen, valt redan innan du går in i GAP-fasen i princip. Runt 25-tal olika moduler finns i SAP. Vanligaste är Financial, Sales Distribution (Order2Cash), Material Management (inköp, purchase2pay, inköp till betalning). CRM, HR. Alltså SAP hanterar egentligen alla delar du kan tänka dig i alla företag, kan alltid använda SAP men för mindre bolag är det överhuvudtaget inte ekonomiskt lönsamt.

NI: Normalt kan sägas vara ett gäng på 5-6 stycken, sen beroende på storleken så väljer de plocka in fler, om deras processer kan dra nytta av det?

Egentligen ja. Går tillbaka då till hur företaget ser ut, hur ser strukturen ut och vad vill de egentligen göra? Varför vill de byta ut de här delarna eller de kanske inte har de här delarna idag och vill implementera någonting. Då har man inte ens kommit till början på processen att implementera något. Då är man i princip på företagets smörgåsbord, där de tittar på sitt företag o ser var de behöver förändring, vad behöver bytas ut, vad kan vi göra och där kan visserligen konsulter vara inblandade som hjälper att se vad de behöver. Jag jobbar inte då, bara från den dag de har bestämt sig, då kommer jag in i bilden. Men det är väldigt intressant och säkert långa processer innan de går ut med anbud till olika konsultfirmor. När de går ut så har de redan valt vilka moduler som skall byggas osv. Det är ju det som de förväntar sig offerter på.

NI: Vad är generellt ert råd gällande customization vs anamma processer inbyggda i systemet?

R1: Rådet är alltid att det är billigare att ändra organisationen än att ändra systemet. Att ändra arbetssättet i businessen är mycket, mycket bättre om man kan göra det och utgå från SAP:s standard. Så mycket standard som möjligt innebär en billigare lösning för kund. Även om man gör modifieringar när man implementerar så varje gång man gör en uppgradering av systemet så måste man se till att de håller även då. Men, man får i princip alltid bygga om SAP:s standard åt företagen lite grann. Det är väldigt smakfullt om redan tidigt i processen verksamheten går ut och säger att det är enbart legala krav som kommer att göra att vi ändrar SAP. Man måste kunna hantera det, annars får man böter eller liknande. Väldigt bra om de är tydliga till verksamheten och säga att de behöver väldigt mycket change management i organisationen för det är affärssystemet vi skall följa. Vi har ju väldigt svårt att neka kunden dock och säga "nä vi bygger inte det". Vi är ju konsulter, vi gör vad de blir tillsagda så länge någon betalar, lite grann så. Kunden säger att vi behöver förändra de här processerna, denna funktionaliteten osv då gör Cap ju det åt dem. Men rådet är alltid att "håll er till standard" så mycket som möjligt.

NI: Du pratade innan om sammankoppling med andra system? Är detta en stor del av projektet och hur vanligt är det?

R1: Man stänger av den del av det gamla systemet som hanterar det som SAP ersätter. I de länder vi gör utrullning med Gambro nu har de olika system, vissa har SAP osv. Men just nu har de ett system där de både hanterar inköp, logistik och finance samt lager. Det som de implementerar innebär sales, finance och inköp men inte lager. Själva fysiska lagret på plats, lagerhyllor osv. Så det gamla systemet måste finnas kvar för att hantera lagret, men de byter en del mot SAP, då måste de ju göra en integration med det gamla systemet. Vi har också andra integrationer, tex i Tyskland samarbetar kunden med en kund som står för 30% av omsättningen och har ett system som varit integrerat med det gamla systemet. Då måste vi när vi implementerar SAP se till att vi integrerar med deras system. Integrationer finns det i princip alltid.

NI: Då går vi in på mer processinriktade frågor. Använder ni någon uttalad processinriktad strategi? Tittar ni på deras processer också eller bara implementerar systemet?

R1: Det beror på vad kunden vill, kunden lägger en beställning på vad de vill ha utfört. Hennes jobb är att se till att de inte gör mer än så. De betalar efter det och jag skall se till att de endast gör det de får betalt för. De har en budget, ett fastpris. Om inte kunden betalar dem för att gå in i deras värld, deras verksamheter utan de betalar för att presentera hur SAP template ser ut, då är det en SAP template de skall göra. Är där någon som är inne o rotar i deras "värld" så norpar jag dem och säger att det får ske på fritiden, de får inte betalt ju. Vi kan göra det om kunden efterfrågar det specifikt men gör inte det om kunden inte betalar för det. Det är lite svårt med tanke på att det är fastpris-projekt, på deras arbetsuppgifter de har, de workshoppar vi har, så har vi ju ett interaktivt möte och lyssnar naturligtvis på kunden om de vill förklara osv men i stort sett så har vi betalt för ett visst antal veckor och skall då utföra workshopparna och presentera och leverera den SAP lösning som finns. På kundsidan i spegelorganisationen så jobbar de säkert mycket med det. Som jobbar på kunden men inte sitter ute i verksamheten och jobbar med systemet, de som är användarnas kontaktpartner. I ett fall tex Gambro så har de förhoppningsvis personer som är 100% dedikerade till projektet

och inte jobbar med något annat med att implementera. Tror att de lägger mycket tid på det, men ofta har inte Cap betalt för att göra det, finns ju konsulttjänster för det också. Då är det kanske change processen som behövs styras upp, consulting service i så fall från Cap. Har varit i implementationer där de driver IT implementationen men change management processen, change management office, administration drivs av consulting service som är lite mer soft skills. Technical consulting är mer IT-styrt och tekniskt styrda.

NI: Hur fungerar exakt uppdelningen med spegelorganisation, har CapGemini personal i båda?

R1: Nej, Cap är inte med där, de kan vara, men det går ju en linje där. CapGemini fastpris är att det är att kunden säger att för X antal miljoner kronor vill vi ha en sådan här implementation/utrullning på X antal sites, vänligen säg till oss hur vi skall staffa oss. För ett antal miljoner så vill vi ha detta, men vi står kanske för lokal, infrastruktur och training. Detta skrivs ju in i ett kontrakt. Sen kan kunden säga att "vi har ingen som kan driva verksamhetsfrågor tex, ex datamigrering", då säger Cap, att "det har vi". Så i vissa fall kan de vara från CapGemini. Men personen som har hand om det ingår inte i fastpris, utan fakturerar som en vanlig konsult. Sen att han är anställd på Cap förenklar givetvis kommunikationen, men han "har kundmössan på sig" när han jobbar för kunden. Lite grann speciellt med fastpris projekt, blir lite fyrkantigt.

NI: Så det är inte som den uppfattningen jag har fått, att konsulter och folk från företaget blandas och jobbar i en symbios?

R1: Det blir på ett sätt en mysig symbios, men när man väljer att ha en fastpris implementation så blir det ändå från CAPs håll att "vi har en budget att hålla", så den mysiga symbiosen är nog så trevlig men Cap styr väldigt mycket. Tex att om vi kommit överens om en sak i GAP:en, men kunden säger senare att de måste ha en viss slags funktionalitet och klarar sig inte utan det, då blir det change request! Cap hanterar det, testar det, "men det kostar det här antalet timmar extra." Sen finns där ju implementationer som drivs av företaget där de tar in konsulter som har en viss slags kompetens. Eon körde sin på det viset, inte fastpris, drev den själv, med endast egen projektledning och de hyrde då in spetskompetens, från då Cap i huvudsak.

Det finns ju två olika sätt att implementera för kunden. Det man skall vara medveten om i fall man väljer fastpris är att Cap kommer att säga att "då gör vi upp en plan, levererar det här då och så vidare". Det bygger på att ni kan lämna besked då och då och det skall vara klart då osv. Om det är så att de inte är klara, vilket gör att Cap stampar bara, vem betalar den tiden då? Då kommer ju en diskussion med kunden om vad Cap skall göra då, vi måste ju ha betalt för våra konsulter. Antingen change request för ledtid eller bjudtimmar om man har en mycket bra relation med kunden, men sådana diskussioner får man alltid få ta i fastpris-projekt. Det behövs ju inte när kunden driver själv, då går konsulterna bara på timbasis och tickar, inte så i fastpris. Måste se till att de personer jag har ryms i budgeten och levererar det de skall leverera. Görs inte det så åker dem ut.

NI: Hur vanligt är det med fastpris-projekt?

Capgemini har ett systerbolag i Sogeti och uppdelningen gjordes så att Cap i huvudsak arbetar med projekt och Sogeti med resursuthyrning, dvs på timbasis. Men, så svart o vitt är det inte

men många på Cap sitter i fastpris-projekt. De tre största SAP projekten de senaste åren har alla varit fastpris, så det är väldigt vanligt. Men utifrån hela marknaden är det svårt att säga.

NI: Berätta om Workflow modulen i SAP. Vilka funktioner har den, efterfrågas den ofta och uppfattas den som bra?

Efterfrågas ofta. Nja, vi har ju workflow konsulter i stort sett i alla SAP implementationer, i den de gör just nu så finns det väldigt få. Om den är bra, tja det antar jag. Vet att där finns ett par workflow konsulter lite här o var, Eon osv. Rent praktiskt ser den till så att du bildar en workflow som sätter ihop ett antal manuella steg. Automatiserar ett antal händelser och i min värld är det bra, om man kan ta bort manuella steg och ta göra det automatiskt. I min värld så innebär det om det kommer upp en workflow request så är det mitt jobb att se till att det finns en workflow konsult där, antingen från Cap eller externt. Varför frågar du om just workflow modulen?

NI: [Förklarar relationen mellan Workflow Management och BPM och går även in på vad BPM egentligen är]

R1: Finns säkert de som hört talas om det och diskuterar det på sina senaste events om den nya tekniken osv, men inte känt för mig.

[Respondenten tänker efter ett tag]

Det verkar inte vara tagit ur fastpris-aspekt i dina teorier. Inte tagit hänsyn till projekt som bedrivs väldigt mycket om inte uteslutande av pengar. För när jag gjorde implementationen på verksamhetssidan så hade vi absolut inte den budgetstyrningen, styrning på leveransobjekt till kund, vilka styrgrupper som är interna/externa, hur de rapporterar ekonomin, hur uppföljning på varje konsult är, reskostnader, hur ser kontraktet ut. Man fokuserar inte alls på sådant inom verksamheten oftast som vi gör här, extremt ekonomistyrda. I businessen var fokus på vilka kunder som skall informeras, vilka skall utbildas, vilka skall sägas upp.

En sak man kan säga är att kunden alltid underskattar den tid det tar att implementera. Optimala är om man kan ha spegelorganisation. 1:1 förhållande optimalt, hade varit succé då. Konsulterna är där men verksamheten sliter oerhört med det, för lite. Spelar inte roll vilket projekt, finns alltid för lite tid i verksamheten. Kund tror också ofta att "äh, de kan säkert göra sina ordinarie arbetsuppgifter på 30% eller något. Kanske mer. Men det blir varken hackat eller malet då, vilket kostar pengar i form av folk. Underskattar man på kundens sida med bemanning så innebär det att man sitter fast och skapar en period där konsulterna inte kan jobba, vilket ger tid som konsulterna sitter o väntar och kostar pengar internt. Bättre att bemanna upp på verksamhetssidan, får ingen ledtid i så fall eftersom det blir en flaskhals annars. Sen är det utbildning, tester.

Ofta säger verksamheten att de inte kan komma ifrån att testa för de har sina ordinarie arbetsuppgifter. Testar man inte tillräckligt så kanske man får ett system sen som inte är bra för att kraven kanske varit tydliga men inte korrekta och det upptäcker man ju inte om det inte testas. Cap upptäcker sällan det, de testar ju det som de utvecklat och de har ju utvecklat det som står i GAP:en. Där är många saker som är framgångsfaktorer i verksamheten när man driver projekt. Tror att det är bra att om man skall driva kundprojekt, att man tar in någon som drivit IT-projekt och kan komma med vilka för/nackdelar, fallgropar i kedjan, var skall vi

tänka på att vi faktiskt skall bemanna upp, var kommer det behövas folk? Var kommer det att vara extra hård belastning på verksamheten? I det vi driver nu så ser projektplanen ut så här: [Ritar på whiteboard] Olika länder – utrullningar – nordan innan osv. När en slutar börjar nästa, så alltid två pågående projekt, vilket gör att de har bemannat upp från CAP, två organisationer.

De underskattar insatsen som krävs från företaget, inte specifikt kostanden. Men de hör ju ihop. Mindre personer påverkar inte fastpriset men indirekt så hinner de inte gå så djupt in som de borde för de har ett parallellt projekt som de skall driva som är i en annan fas. Kanske inte tid att utveckla kraven, träna tillräckligt. Detta innebär att om man gör en kass GAP så innebär det oklarheter i byggfasen och måste då gå tillbaka ”rött eller svart”. Jag vill ha rött, ”men då måste vi höra med den beslutsfattaren” så måste den bestämma, ah han var borta, kan inte besluta innan dess. Flaskhals då kanske för att nästa aktivitet är beroende av den förra osv, kan till slut innebära att vi står still. Har man då ett fastpris så går man till kund o säger: ”vi kan inte göra mer för vi har de här öppna punkter som måste stängas av er. Just nu sitter vi med 15 och har ingenting att göra, varje person 1200 tim tex, ganska mycket. Syns inte direkt, men kan leda till oklarheter och dåliga implementationer.

NI: Ja, då känner jag mig klar. Har du något mer att tillägga eller skall vi stänga av bandspelaren?

R1: Nej, det känns okej.

Uppföljning Mail 2008-04-15

NI:

Go Live Support:

Vilka aktiviteter har ni här? Som jag förstod det så är det en fas i sig som startar precis efter Go Live, det stämmer va?

Tidsbestämning:

Kan du försöka att tidsbestämma varje fas i procent av total projekttid? Förstod att de kunde variera, så om du väljer att svara i intervaller (tex Final prep 10-25%) var vänlig att ange vilka faktorer som gör att tiden varierar.

AN:

Go Live support är en fas efter Go Live och support perioden och supporttiden bestäms i huvudsak baserat på kundens behov; hur van är verksamheten av det nya systemet, hur mkt involverade har dom varit tidigare i projektet, har dom organisationsförändringar i samband med Go Live etc etc.

Aktiviteter i supporten är i stort sett bara en; Korrigera fel i lösningen eller hjälpa användarna om felet beror på att användarna använder systemet felaktigt. Det uppkommer också väldigt mkt önskemål om lösningsändringar under denna perioden och det är viktigt att man, om man

rullar ut en delvis global lösning, isf tar hänsyn till att ändringarna också påverkar andra redan existerande verksamheter som redan är live i systemet.

Det är ganska svårt att göra en bra bedömning av projektcykeln och procentsätta de olika faserna men jag ger ett generellt exempel när det gäller SAP standard utrullning dvs där man har en template som ska rullas ut i en verksamhet el länder.

GAP/Blueprint fas 30%

Realisations fas 45% inkl Integrations test och acceptans test

Final Prep 15%

Go Live Support 10%

Ovan procentsatser kan självklar variera väldigt beroende på hur tydligt definierade kraven är och hur mkt utveckling som behövs genomföras utöver den standard template som ska rullas ut,. Siffrorna ovan är dvs mycket osäkra.

Appendix 3 – Interview Guide Company B

Allmänt

- Berätta om dig själv yrkesmässigt. Titel? Arbete? Karriär?

ERP implementation

- Vilka mål med implementeringen brukar era kunder ha?
- Vilka olika faser särskiljer ni vid en implementering av ett affärssystem? (P1)
 - Hur länge varar faserna?
 - Vilka är aktiviteterna i de olika faserna?
 - Vad är viktigt att fokusera på? CSF?
 - Vilka problem uppkommer i de olika faserna?
 - Hur utbrett är motstånd som ni upplever det? Orsaker? Form?
 - Fortsatt kontakt efter utrullningen?
- Ser det likadant ut för era kunder eller brukar fler faser finnas för dem? (P1/P3)
- Hur ser uppdelningen ut i projekt? Jobbar nära tillsammans i en projektgrupp eller särskiljer mellan teknisk implementation och ”affärsimplementation”? (P3)
- Hur betalas projekten? Är det en fast summa eller betalas konsulterna på timbasis? (P3)
- Vilken typ av implementering är vanligast, sett till antal moduler osv? (P2)
- Vad är generellt ert råd gällande customization vs anamma processer inbyggda i systemet? (P2)

Process Management

- Är fokus på processförändring något era kunder nämner mycket? (P2)
- Berätta om Business Process Management modulen.
 - Funktioner?
 - Ofta efterfrågad?
 - Genomförs processmodellering redan i implementationsprojektet?
 - Vilket språk eller modelleringsteknik används?
 - Kan modellerade processer automatiskt rullas ut till resten av systemet?

Appendix 4 – Company B Transcript

Date: 2008-06-03

Location: Company B's office, Malmö

Respondents: Lars Kristoffersson (R1)

Interviewer: Niklas Idorn (NI)

NI: [Förklaring av uppsatsens ämne och vad som kommer tas upp under intervjun]

NI: Var har du för yrkesmässig bakgrund?

R1: Systemvetare i botten, utbildad i Lund. Arbetat som programmare, systemerare, konsultchef, säljare, kund ansvarig och hade innan pågående omorganisation titlarna Customer account executive och practise director. Som konsultchef jobbade jag med att möta leveransen till kund med rätt människor och i rätt tid. CAE, kan väl på svenska kallas kundansvarig eller account manager eller liknande. Träffar kunder som vi redan har, säljer inte mot nykunder. Har varit på företaget sen 2001.

NI: Vad brukar kunderna ange för anledning till att de väljer att implementera er produkt? Vad vill de få ut av att få in det i organisationen?

R1: Handlar bara om att spara pengar, ingenting annat. Bli effektiva, spara pengar så man får en konkurrensfördel gällande pengar. Brukar finnas ROI med i bilden också att tex nu satsar vi 4 miljoner och vi vill minst ha tillbaka 12 inom en rimlig tid. Idag pratar man om att inom 18 månader skall man helst ha tillbaka dem. Förr hade man längre projekt som kunde vara i ett par år, men nu skall det vara små korta projekt för att komma upp i de nya sakerna. Man kan inte sälja idag utan att säga att de skall tjäna pengar.

NI: Hur ser ett implementationsprojekt ut hos er?

R1: [Visar PowerPoint-slide]

Vi har tre olika faser i ett projekt, define, establish och execute. Define-fasen kan till och med ibland nämnas som försäljningsfasen men jag är lite rädd för det, det är ju att man egentligen definierar vad man skall leverera. Det kan ju uppfattas som sälj, men jag tycker att sälj är egentligen bara att förklara vad det kan användas till men så fort vi börjar mäta en kunds möjligheter är vi ju helt plötsligt inne i deras verksamhet. Så i den fasen låter man egentligen att låta vår programvara och våra modeller möta kundens processer och få ihop de bitarna. Så de processerna vi har definierat i vår programvara går rakt in. Sen har vi establish, det som många ser som själva projektet, när vi tar programvaran och börjar skruva den mot det håll som kunden vill att den skall vara. Sen execute är ju när vi driftsätter det. Define liten, establish större och execute minst.

NI: Om du skulle försöka definiera de mer precist i procent.

R1: Execute blir högst 5% men däremot define och establish kan ju skifta. Define kan gå upp till 25%, mellan 10-25%. Leverabeln är statement of work, ett avtal om vad som egentligen skall göras under projektet och sen ligger establish på kanske runt 75-85% av allting.

[Visar slides med implementeringsfaserna]

Enkelt uttryckt så är det som faserna heter, först definierar du förändringen, sen etablerar du den och slutligen driftsätter du den. De här tre bitarna är så som vi kör nu. Dokumentet du har fått visar tydligt dessa faserna, tex här i define så är statement of work väldigt viktig. Det visar exakt hur vi skall samarbeta med kunden, vad vi har för förväntningar på kunden och vad kunden har för förväntningar på oss. Ungefär som när en arkitekt ritat ett hus, statement of work är ritningen med vad som krävs, alla hållfasthetsberäkningar och så vidare. Står tydligt i dokumentet hur vi tänker.

NI: Om vi ser på "people focus" här i er beskrivning, är det något ni också har ansvar för eller blir det kundens ansvar?

R1: [Ritar upp projektorganisationen]

Jag kan rita upp hur det ser ut. Överst har vi styrgrupp, de som i regel bestämmer. I styrgruppen allokera en roll som vi kallar PE – Project Executive. Det är någon från vårt bolag som i regel sitter i någon form av managementroll som kan gå in och styra och ställa lite. Det är vad vi bidrar med till styrgruppen, mer än så är det inte. Tar med kundens beslutsfattare där också. Under detta finns två projekt, ett för ERP bolaget och ett för kunden, med projektledare från respektive organisationen. Dessa projektledare är underordnade styrgruppen. Vi kan inte sätta en ansvarig från vårt företag som projektledare för deras projekt, vi kan inte vara inne och peta i deras organisation. Det är inte så att de två projektgrupperna måste vara symmetriska, det kan skifta från projekt till projekt. Det är processerna som man hanterar som ofta bestämmer hur det skall se ut under de två projektgrupperna. I regel är det delsystem som ligger under och där finns en super user som i regel tar hand om det. Men våra konsulter kan ibland kanske ha hand om motsvarande två processer, vilket gör att projekten ser lite olika ut. Ett affärssystem slår igenom hela företaget och det måste man veta om man gör ett affärssystem eller köper ett affärssystem. Alla skall med in annars blir något fel. Alla blir beroende av alla. Rapporterar du inte på ett ställe så får du inte rätt orderbekräftelse på ett annat ställe och så vidare, alla måste vara involverade. Interageringar emellan projektgrupperna finns naturligtvis också.

NI: Hur betalas projekten för? Är det fastpris att "vi betalar så här många miljoner, kom och implementera" eller är konsulter som går och tickar på timbasis?

R1: Vi ligger idag otroligt sällan på fastpris, både inom nykundsprojekt och uppgraderingar. Kör det mesta på löpande räkning. Men kör ibland med målpris och takpris, att man räknar ut ett pris som man tror att man hamnar på och ligger man på 15% över så drar vi i handbromsen så vi får titta på det så vi inte bara rullar vidare. Så var det i branschen förr i tiden, att man bara körde på. Oftast löpande, vi berättar vad vi estimerar för tidsåtgång och kontrakterar sedan utefter det.

NI: När du ritade upp projekten innan så talade om interaktion mellan de två projektgrupperna. Vilka specifika aktiviteter rör det sig om?

R1: I define så börjar det med en RFI från kund, Request for information. När de har fått reda på vad vi kan och tycker det låter bra så vill de ha en RFQ, request for quotation. Detta brukar

sedan resultera i att vi skall göra en demo för kunden. Om det sen ser bra ut så börjar diskussioner om hur skall vi kunna ha ett projekt tillsammans, penetrera kundens verksamhet och kundens processer för att hitta igenom hur skall vi matcha det med vårt affärssystem. Baserat på det så gör man en statement of work. ”Baserat på att ni söker dessa lösningarna så kommer vi etablera dessa lösningarna i de här olika processerna med hjälp av affärssystemet och det tror vi kommer kosta så här många dagar”. Du har en massa arbetsmöten med kunden sen, dels inom det övergripande men även inom de speciella delprocesserna. Arbetsmöte, beslutsmöte, arbetsmöte, beslutsmöte ända tills man landar i en helhetsbild. När man sen skall bara leverera det så är det lite som när man skall bygga hus, svårt att veta exakt hur mycket cement som behövs där och hur mycket kakel som behövs där osv. Man har byggt ett hönsnät som sen skall användas för att täcka hålen. Vi förfinar vår kunskap om kundens verksamhet och kundens processer. Man måste också tillföra något nytt, inte bara se till nuläget utan få organisationen att tänka nya tankar. I slutet landar man på en färdigkonfigurerad lösning på varje process som sedan skall samlas tillsammans. Sen när man har konfigurerat så går man in i testning, först gör man ett pilottest och sedan ett fullskaletest. Pilottesten är egentligen bara för att se att alla processerna ligger parallellt i projektet, så man får skynda på vissa så de kommer ikapp. Sen går man in i fullskaletest, så vet man att de ligger i samma fas men lirar de samma nu? Så när man matar in en order så far packsedlar ut och börjar kunna fakturera osv. Funkar det så fryser man allt och ser vilket driftsläge man skall köra och hoppas att man klarat budgeten.

NI: Vilka problem kan ni ofta stöta på?

Det stora problemet man har i all verksamhet i IT-branschen det är att den ena parten är mycket svagare i sin imaginära förmåga och har oerhört höga förväntningar som vi som leverantör försöker hålla borta från oss själva. Allting man inte säger är det som är problemet, inte det man säger. Sen är det så olika i hur människor uppfattar saker.

[Respondenten tar ett exempel om när du ber någon tänka på hur en hund ser ut, så stämmer sällan den bilden överens med vad en annan tänker]

Språket mellan oss människor är så oerhört olika, där ligger det största problemet. Också i konkurrensläget så finns det oerhört många dåliga säljare, för det viktigaste för dem är att komma hem med ett kontrakt, inte att man har en kund man kan leverera till. Gör att ibland far med med inte fulla sanningar. Kunden öppnar upp och förväntar sig allt och vi försöker hålla nere de förväntningarna. Men kunden vill inte säga det och vi vill inte berätta för då kanske de inte skriver på avtalet. Oftast är detta problemet, är att man inte är tydlig i förväntan på varann. Dålig beställarkompetens är också vanligt, speciellt från de som inte är insatta, lite som kejsarens nya kläder ibland. Som säljare måste man vara aktsam om kunden. Vem som helst kan sälja till någon en gång, men att göra det om och om igen är få förunnat. Det handlar bara förtroende som man bygger på att man levererar det som kunden har förväntat sig och då är det rätt bra att ställa kundens förväntningar i den proportionen du kommer att leverera och inte tvärt om.

NI: Om vi går in på motstånd och attityden att ”vi har haft detta systemet i 10 år, varför skall vi byta?” Är detta något ni stöter på.

R1: Ja det finns alltid ett avstånd, det är klassiskt. Är det hör med företagsledning.

[Ritar upp exempel]

Om du tittar på ett företag så består det oftast av en ledningsgrupp och sen här under finns affärsområden eller avdelningar eller något annat. Går vi sedan ner så kommer vi till killarna och tjejerna som "kör koks" i källaren. Oftast är det så att i ledningsgruppen ser man ett problem, "våra konkurrenter är mer effektiva, tjänar mer pengar än oss, vi vill uppnå något för att bli mer framgångsrikt företag". Vi måste se om vi kan bli bättre, se över våra processer. Oftast kontaktar de då ett managementbolag som då skall vara opartiska, bara jobba med processen utifrån det teoretiska, som sedan kan leda till att man går ut med RFQ till ett antal ERP-bolag. De lägger 3- 5- och 7-årsplaner i vårt knä sedan och frågar, hur kan ni stödja oss med detta? Ledningsgruppen brukar vara bra på att lira med de ansvariga på varje affärsområde, oftast finns där en förståelse om vart den här ledningsgruppen är på väg. Men tjejerna och killarna som "kör koks" har ingen aning. Om du tittar på define fasen så är det med ledningen vi jobbar, våra beställare är oftast ledningsgruppen på ett företag. Men vem tror du vi jobbar med i establish-fasen? De längre ner. Så är det ett glapp inom företaget så finns det glappet i våra projekt också. Det här pratar man inte om, men frågan är om det är vår uppgift att skjuta ner deras utvecklingstendenser neråt i deras företag eller är det deras problem? Jag tycker det är deras problem. De borde göra ett uttalande och säga det här är vårt mission, vår strategi så nu gör vi såhär. Våra konsulter får ofta höra "vafan skall vi göra såhär för, vi har gjort såhär i 100 år det har gått jättebra". Så får vi helt plötsligt bevisföringen. Vi har bevisat för de som har beställt jobbet men så måste vi berätta för dem också för att de inte var bra på att köra sin egen förändringsarbete internt. Men förändringen är inte vårt jobb, det är sådant som managementkonsulter tycker bättre om. Vår uppgift är att ta vårt affärssystem och skicka in det enligt den bild som ledningsgruppen har beställt. Sen får vi stå till svars för det, det är inte rättvist emellanåt. Sen har ju alla ofta ett motstånd till förändring, det är få förunnat att tycka att all förändring är rolig.

Sen har vi även olika folk i de olika faserna. I define fasen med ledningsgruppen har vi ju säljare och pre-sale. Säljaren är den som tecknar avtalet, han som fixar affärsupplägget. Sen bytar vi ut folk, de lägger ut hönsnätet till de som sedan skall spika fast det i establish fasen. Om organisationen då inte varit rak så blir det inte alltid så tydligt. Även affärsledningen därinne inser att de har ett stort ansvar.

NI: Du nämnde lite om maintenance-intäkter innan, kan du utveckla det?

R1: Om man tittar på hur våra intäkter ser ut ... Kan ta hela så du hänger med. Ser ut följande:

[Ritar upp affärsmodell]

En bit består av ren licens, vilket är en engångsavgift. Sen har du maintenance ovanpå detta, en årlig avgift. Sen har vi den andra biten som vi kan kalla consulting, som snurrar när vi träffar ett avtal med kund och skall leverera någonting. Så man kan säga att vi skulle kunna ta bort översta biten och ändå få licens och maintenance-intäkter. Så gör SAP, de låter någon annan ta hand om consulting-biten. Men vi vill ha med den biten så man inte kan skylla på varann. Det är våra huvudströmmar, sen finns det lite sidoinkomster.

NI: Hur är ert affärssystem uppbyggt? Vilka moduler brukar installeras och så vidare?

R1: Ja rent fysiskt är det såhär, det är därför jag pratar om nyttjanderätten: Vi kan installera allt men kunden har inte rätt att nyttja alla delar av det. Jag kan visa här hur vår prislista ser ut:

[Visar lista med vilka moduler som finns och förklarar lite mer om varje]

Det finns ju ett antal huvudmoduler eller huvudprocesser om man vill kalla det så, sen finns det delprocesser under alla dessa.

NI: I många affärssystem finns en workflow modul, motsvaras det av er Business Process Management suite?

R1: Nja, Worklflow... Det blir en processbeskrivningsmodul du menar då?

NI: Ja, det kan man säga.

R1: Ja då är det så här att vi har precis slängt ihop något nytt. Men ja det finns där. Den heter Process flow integrator, ganska nyframtagen och ligger i vårt programverktyg. Det är i princip en processritare, vad är det som händer, vad vill man ha med och vad vill man inte ha med.

[Visar slides om modulen]

Här kan man se vilka delar finns då inom olika bitar. T ex här i planning rutan, vad är det vi planerar, hur fungerar inköpshanteringen? Allting är förkonfigurerat, delat upp det i de olika stora bitarna, t ex tillverkningsdelen, vilka processer finns det inom det? Sen kan man ta sig neråt och se hur ser den här processen ut exakt. Hur ser tex vår tillverkningsprocess ut, vilka flöden har vi inom den processen. Så finns ritningar hur strukturen av processen ser ut.

[Visar slide av en process uttryckt i modell]

NI: Så det är i princip process modellering?

R1: Ja kan man väl nästan säga. Vi lägger detta online i vårt affärssystem så om en användare inte förstår hur processen ser ut så kan han gå in och titta på hur ser den här delen ut, fullt ut. Så det går att integrera vårt hjälpsystem med den processbeskrivning som gjorts.

NI: Går det att ändra då också eller fungerar det bara som beskrivning?

R1: Mja, du kan inte gå in och editera eller modifiera den, du kan bara ha den på ett sätt ju. En orderprocess för en ordertyp skall ju alltid se likadan ut. En användare kan inte få för sig att ”ja men det kunde ju vara bra om jag kunde göra såhär”. Nä nä, det har ju någon redan bestämt att det här orderflödet skall se ut så här. Det enda en användare kan göra är att customisera sitt användargränssnitt. Men aldrig processerna, det hade blivit ett jäkla virrvarr. Någonstans måste det ju bara dokumenterat att så här skall det fungera. Kommer det önskan högre upp om att ändra processen så kan man ju omkonfigurera, men du kan ju bara ha ett sätt att se på en processdel. Du kan inte ha att en tillverkningsorder hanteras olika varje gång. Det här är en beskrivning, en karta av hur tänkte vi. Sen kan man omkonfigurera, flytta runt de här bitarna så det blir rätt.

Man använder det först för att modellera fram korrekt arbetsmaterial. Sen när man har bestämt att så här skall det se ut så blir det plötsligt dokumentation över hur det ser ut. Sen kan vi dessutom använda det, t es när en användare är inne i sin process och klickar på hjälp så kan han få upp den här bilden.

NI: Vad är er Business Process Management suite?

R1: Det är inte min främsta sida, men jag har lagt in dokumentation på memory sticken du får med dig. Det finns fem delar; API, Ibrix, MAK, Mec och web services, det är vår suite. Application program interface, ett vanligt program utan interaktion mot användare. Ett program som kallar på dig och kan hela tiden förutsätta vad det här andra programmet kan göra. Man kan nå alla våra program som API:er, man kan skicka in en parameter. Tex, räkna ut ränta på något, ”jag har så här mycket pengar som skall stå i så här många år”, så skickar man in de parametrarna. Så räknar det ut. Kunde ju annars varit ett program med interface där man skrev in osv. Ibrix är vårt sätt att kunden skall kunna bygga egna sammanhållande logiska program. Ett skikt man möter en användare med, webb-baserat, har sammanställd data. Som användaren i sin tur kan jobba ner i diverse program som finns i affärssystemet. I det gränssnittet så kan han få listor eller paj-diagram som om han klickar på hoppas rakt ner i ett program. Ett sätt att nå affärssystemet. Vill på något sätt ge en lättare ingång i programmet. Tex en på ekonomiavdelningen har hand om vem som inte betalt fakturorna. Istället för att öppna upp programmet och fråga om alla fakturor från ett företag så kan man bygga tabell i Ibrix som anger kund, fakturanr, pengar och förfallodatum. Frågar sen: Ge mig alla kunder med förfallodatum igår och bakåt. Då får användaren möjligheten att klicka på ett resultat och sedan hoppa rakt ner i en applikation i affärssystemet som heter förfallen faktura från given kund. Då slipper kunden sitta och mata in allting varje gång. Man kan genom överblicken klicka sig rakt ner till detaljerna om en order. Ibrix är till för att underlätta hanteringen av våra program.

[Respondenten beskriver kortfattat MAK och Mec och hänvisar till filerna]

Mec har att göra med när system skall prata med varandra. Vi vill tex skicka löneutbetalningar till en bank. Förr gick man in i utbetalning i affärssystemet och la in exakt hur bankens utbetalningar såg ut. Nu finns det en programvara som skyddar affärssystemet från inre och yttre våld som heter Collaborator. Skickar datan in och ut där för att säkerställa att databasen aldrig blir inkonsekvent, att man pajar den logiska uppbyggnaden. Det kunde man göra förr, det fanns inte alla kvalitetskontroller. Går man genom kollaboratorn så garanterar de att databasen förblir konsekvent. En order kan aldrig existera utan en kund osv. Om man tar importen eller exporten till eller från kollaboratorn så kan det inte sabba databasens uppbyggnad.

NI: Vad är ert råd angående modifiering av affärssystemet för att passa organisationens processer?

R1: Nummer ett är det så här att inom vårt affärssystem så finns det än mängd valmöjligheter som finns inom systemet. Det innebär att du ändrar inte i affärssystemet utan du gör inställningar för att få den att fungera på ett visst sätt. De ligger ju inom ramen för vårt standardsystem, sådan konfigurering är ju bara bra för det ryms inom ramen för vårt affärssystem. Det vi driver men som kunderna framförallt har insett är att det är förtvivlat dyrt att göra modifieringar av själva systemet, alltså att göra ett tillägg eller förändringar som inte

täcks av standardprodukten. Många, framförallt ekonomichefer säger att det skall vara nolltolerans mot modifieringar. Jag tror det är ett bra förhållningssätt. Det är inte dyrt första gången, men det blir förbannat dyrt andra gången. Varje modifiering du släppt igenom måste göras om en gång till när det skall uppgraderas. Våra maintenance är bara baserade på vår standardprodukt och det är det som är skillnaden. För att slippa modifiering finns bland annat SmartClient där inställningar kan göra så att tex ett fält blir gult om 2 villkor uppfylls. Skapar större möjligheter att få ett informativt system för just en specifik kund. Det ger en möjlighet för ”komfortanpassningar” som tidigare gjordes av konsulterna men kan nu göras av kunderna själva.

Generellt sett så vill kunder heller inte ha modifieringar. Skall det vara något så är det för något som är signifikant för deras arbete eller deras konkurrens. Lättare att anpassa människan till maskinen än maskinen till människan, även om det går stick i stäv med det jag läste i skolan för 25 år sedan. Visst är det bra, men den ekonomiska faktorn gör att det inte är hållbart. Marknadsekonomin är rå och brutal, de personer som kan anpassa sig bäst till förutsättningarna är de som de skall anställa. Användbarhet är viktigare än användarvänlighet.

NI: Klart, klart.

Appendix 5 – Confidentiality agreement

Agreement of Confidentiality

- I choose to in the final report be totally anonymous and instead be referred to “respondent 1” or alike.
- I choose to demand that the company I work for remains unnamed.
- I choose to demand that any business data that has been granted to the researchers during the interview should be masked or distorted in the final publication.

The Respondent will be handed a copy of the report prior to the hand-in in order to correct any major errors in the text and make sure that the confidentiality agreement has been met.

Additional terms of agreement demanded by the respondent:

Respondent:

Signature

Name and Date

Researcher:

Signature

Name and Date

References

[1] www.fairdene.com, accessed 2008-05-13.

Al-Mashiri, M., Al-Mudimigh, A. & Zairi, A. (2003). Enterprise resource planning: A taxonomy of critical factors. *European journal of operational research*, 146, 352-364.

Aladwani, A.D. (2001). Change strategies for successful ERP implementation. *Business Process Management Journal*, 7(3), 266-275.

Andersson, K. Gillstedt & Idorn, N. (2006). Varför vill de inte? *Bachelor's thesis. Department of Economy and Technology, Halmstad University.*

Bradford, M. & Roberts, D. (2001). Does your ERP system measure up? *Strategic Finance*. 83 (3), 30.

Box, S. & Platts, K. (2005). Business Process Management: establishing and maintaining project alignment. *Business Process Management Journal*. 11 (4), 370-387.

Creswell, J.W. (1998). *Qualitative inquiry and research design: choosing among five traditions*. Thousand Oaks, CA: SAGE.

Curran, T. & Ladd, A. (2000). *SAP R/3 Business Blueprint: Understanding Enterprise Supply Chain Management*. Upper Saddle River, NJ: Prentice Hall.

Davenport, T.D. (1998). Putting the enterprise into the enterprise system. *Harvard Business Review*, 74(4), 121-131.

Davenport, T.D., Harris, J.G. & Cantrell, S. (2005). Enterprise systems and ongoing process change. *Business Process Management Journal*, 10(1), 16-26.

Finney, S. & Corbett, M. (2007). ERP implementation: a compilation and analysis of critical success factors. *Business Process Management Journal*, 13(3), 329-347.

Gefen, D. & Ragowsky, A. (2005). A Multi-level approach to measuring the benefits of an ERP system in manufacturing firms. *Information systems management*, 22(1), 18.

Guha, S., Kettinger, W.J. & Teng, T.C. (1993). Business Process Reengineering: Building a Comprehensive Methodology. *Information Systems Management*.

Gulledge, T.R. & Sommer, R.A. (2002). Business process management: public sector implications. *Business Process Management Journal*, 8(4), 364-376..

Harris, J. (2004). The road to ERP optimization. *Government Finance Review*, 20(6), 18.

Huq, Z. & Martin, T.N. (2006). The recovery of BPR implementation through an ERP approach. *Business Process Management Journal*, 12(5), 576-587.

- Küng, P. & Hagen, C. (2007). The fruits of Business Process Management: an experience report from a Swiss bank. *Business Process Management Journal*, 13(4), 477-487.
- Kvale, S. (1996). *Interviews: an introduction to qualitative research interviewing*. Thousand Oaks, CA: SAGE.
- Lawrence, P. (1997). *Workflow Handbook 1997, Workflow Management Coalition*. In van der Aalst, W.M.P., ter Hofstede, A.H.M. & Weske, M. (2003). *Business Process Management: A Survey*.
- Markus, L.M., Axline, S, Petrie, D & Tanis, C. (2000). Learning from adopter's experience with ERP: problems encountered and success achieved. *Journal of Information Technology*, 15, 245-265.
- Mark, R. (1996). *Research made simple: A handbook for social workers*. Thousand Oaks, CA: SAGE.
- May, T. (1997). *Social Research – Issues, methods and process, 2nd ed*. Buckingham: Open University Press.
- Nah, F., Lau, J., & Kuang, J. (2001). Critical factors for successful implementation of enterprise systems. *Business Process Management Journal*, 7(3), 285-296.
- Netjes, M., Reijers, H. A. & van der Aalst, W. M. P. (2006). FileNet's BPM life-cycle support. *Eindhoven University of Technology, Department of Technology Management*.
- Parr, A., & Shanks, G. (2000a). A model of ERP project implementation. *Journal of Information Technology*, 15. 289-303.
- Parr, N. & Shanks, G. (2000b). A Taxonomy of ERP Implementation Approaches. *Proceedings of the 33rd Hawaii International Conference on System Sciences*.
- Reijers, H.A. (2006). Implementing BPM systems: the role of process orientation. *Business Process Management Journal*, 12(4), 389-409.
- Ross, J. W., & Vitale, M. R. (2000). The ERP Revolution: Surviving vs. Thriving. *Information Systems Frontiers*, 2(2), 233-241.
- Seale, C. (1999). *The quality of qualitative research*. Thousand Oaks, CA: SAGE.
- Shang, S. & Seddon, P.B. (2007). Managing process deficiencies with enterprise systems. *Business Process Management Journal*, 13(3), 405-416.
- Sieber, J. E. (2001). Protecting research subjects, employees and researchers: implications for software engineering. *Empirical Software Engineering*, 6(4), 329-341.
- Singer, J., & Vinson, N.G. (2002). Ethical issues in empirical studies of software engineering. *IEEE Transactions on Software Engineering*, 28(12), 1171-1180.

- Smith, H. & Fingar, P. (2007) *Business Process Management: The Third Wave*. Florida: Meghan-Kiffer Press.
- Soja, P. (2008). Examining the conditions of ERP implementations: lessons learnt from adopters. *Business Process Management Journal*, 14(1), 105-123.
- Somers, T.M. & Nelson, K.G. (2004). A taxonomy of players and activities across the ERP project life cycle. *Information & Management*, 41, 257-278.
- Somers, T.M. & Nelson, K.G. (2003). The impact of strategy and integration mechanisms on enterprise system value: Empirical evidence from manufacturing firms. *European Journal of Operational Research*, 146, 315-338.
- van der Aalst, W.M.P., ter Hofstede, A.H.M. & Weske, M. (2003). *Business Process Management: A Survey*.
- Yin, R.K. (2003). *Case study research: design and methods*, 3rd ed. Thousand Oaks, CA: SAGE.
- Yukl, G. (2006). *Leadership in Organizations (6th ed.)*. Upper Saddle River, NJ: Prentice Hall.
- Zviran, M., Pliskin, N & Levin, R. (2005). Measuring User Satisfaction and Percieved Usefulness in the ERP Context. *Journal of Computer Information Systems, Spring Edition*, 43-52.