MASTER

Business process management

how organizational characteristics influence BPM projects carried out in those organizations

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Business Process Management: How organizational characteristics influence BPM projects carried out in those organizations

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Preface

It is done, finished, over. Hard to imagine, but the half year in which I have sunk my teeth into the world of Business Process Management in particular and management consulting in general is already past. History. A period which was highly educational, very enjoyable and extremely interesting, to say the least. During the intensive thesis work, I have had a wonderful opportunity to discover the Wonderland which is generally referred to as practice.

In this Wonderland, I have found one utmost truth, reflected in the following quote:

The truth is rarely pure and never simple

(Oscar Wilde, The Importance of Being Earnest, 1895, Irish dramatist, novelist, & poet)

Still, this research project presents a tiny fraction of newly discovered truth in a field of research which was, up to now, hardly explored. This achievement would not have been possible without the help of many others. First of all, my supervisors. Thanks to Hajo, for his enthusiastic support, critical remarks and most of all, for his mentoring role. To Hans, who helped sharpening many aspects of this thesis and for his time he devoted to pointing me in the right direction. My gratitude also goes out to Maarten. He was a great help finding my way around in the organization, kept me focused and made sure that my work was consistent in every aspect. Of course, I am thankful to Deloitte and its employees, for providing the necessary facilities, data, information and loads of beautiful impressions. I can only be grateful for such a marvelous environment to work in.

Finally, but most importantly, I would like to thank my family, friends and roommates, who supported me. Moreover, they had to bear with me and my seemingly constant lack of time during this intensive period.

Now, it is time to move on, again in the world of management consulting, BPM and once again with Deloitte.

Sander van Wijk

Eindhoven, May 2009

Abstract

Business Process Management (BPM) is positioned as an important management practice. However, little is known about the type of organization actually adopting BPM.

To shed light onto the relationship between organizational characteristics and BPM, over thirty BPM related consulting projects were studied in an explorative multiple-case study. The characteristics of those BPM projects and characteristics of the organization in which the project was carried out were examined.

Organization size and strategy were found to influence the characteristics of the BPM projects. Larger organizations seem to be more progressed in BPM. Notable differences exist between BPM projects carried out in organizations with different strategies. In spite of that, the research presents findings indicating that the applicability of BPM is certainly not limited to organizations pursuing an operational excellence strategy. The findings uncovered in this research provide both science and practice with useful insights to focus future efforts.

Summary

Business Process Management (BPM) is positioned as an important management practice. It provides organizations with a means of increasing competitiveness and is considered a number one business priority. In spite of the clear importance of BPM, a literature review revealed that very little is known about the type of organization actually adopting BPM.

High level elements of BPM include continuous improvement, reengineering and benchmarking of business processes. Another insight gained from the literature review is that BPM should be considered a holistic management concept. As a consequence, the adoption of BPM can hardly be viewed as a dichotomous choice. Therefore, the form of adoption needs to be taken into account while studying BPM adoption.

This has lead to the objective of this research;

To enhance the theory surrounding BPM, by gaining insight into the actual form of adoption of BPM in practice in organizations in the Netherlands, in relation to the organizational sector, size, and strategic orientation of those organizations

As tools to measure the extent of BPM adoption (or BPM maturity) are currently still in an experimental state and literature is limited in this area, it was chosen to conduct a multiple case study. BPM projects conducted in cooperation with this researches' industry sponsor Deloitte Consulting were selected as the unit of analysis. Given the holistic nature of BPM, a BPM project is unlikely to change an organization into a BPM organization completely at once. Hence, a BPM project is – among others – characterized as a project focused on business processes meant to facilitate or assist – future – organizational change and thus bringing an organization a step further towards BPM.

Research questions

Based on the preceding, the main research question was formulated as follows:

How do characteristics of BPM projects differ when carried out in different types of organizations in the Netherlands?

Existing literature mentions organization size, strategy and industry sector as possible differentiators in BPM adoption. Industry sector is split up in two characteristics; the profit motive and whether the organization has manufacturing or service (non-manufacturing) as primary activity. This has lead to four sub research questions:

- *Do characteristics of BPM projects differ when carried out in large compared to small organizations?*
- *Do characteristics of BPM projects differ when carried out in non-profit compared to other – profit – organizations?*
- *Do characteristics of BPM projects differ when carried out in manufacturing compared to non-manufacturing organizations?*
- *Do characteristics of BPM projects differ when carried out in organizations focused on operational excellence, customer intimacy and product leadership?*

As a start, all BPM projects carried out by Deloitte Consulting and ended after 2004 were listed. Out of those, a very diverse set of thirty-three BPM projects remained that matched the requirements. Those requirements included a possibility to interview at least one project practitioner and the availability of sufficient documentation.

Nine BPM projects were studied more extensively to develop, test and refine a coding framework. This coding framework was used to enable a clustering of cases in order to draw comparisons. Therefore, the characteristics of both the BPM projects and the organization in which the project was carried out are coded on a nominal data scale.

BPM project characteristics studied include its trigger, objectives, focus area (the type of business processes in scope) and the type of BPM. The latter characteristic is conceptualized through an existing business process life cycle model.

The validity of the codes assigned was assessed trough triangulation of codes. Those assigned based on documentation and those obtained from a semi-structured validation interview with a project practitioner were compared. This has lead to a satisfactory inter-rater reliability reflecting substantial agreement between the various data sources. The interview data served as input to further analysis and discussion.

Results

The studied BPM projects are very diverse, both in terms of the project characteristics and the characteristics of the client organization involved. Some projects are part of ERP implementations, facilitate major supply chain changes or are part of the launch of a new product offered through an online channel. Findings include:

- Neither organizations pursuing an operational excellence strategy or any other strategy are in majority in the sample of organizations.
- Over half of the projects was triggered by an overarching initiative. These overarching initiatives are in most cases of an IT nature, hence, BPM served as an enabler to the IT implementation.
- The design of business processes is the principal part in most BPM projects.

Organizational characteristics correlate with BPM project characteristics.

Of the four organizational characteristics assessed, organization size and strategy correlate statistically significantly with multiple BPM project characteristics.

Larger organizations are more commonly focusing their BPM projects on the latter phases of the BPM life cycle. This points towards a possibility that larger organizations are more progressed in BPM.

Organization strategy correlates with the BPM projects' triggers. Organizations pursuing a operational excellence strategy are more commonly starting their projects as independent initiatives. Combined with the finding that those organizations less commonly start projects to implement some sort of technical solution (IT), it seems like operational excellence organizations are more explicitly pursuing business process improvement.

Neither the profit motive of an organization, nor its main activity being manufacturing or non-manufacturing, was found to correlate with the BPM project's characteristics carried out within those organizations.

Based on the findings of the research, recommendations to practice and an outlook for further research could be provided.

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1 Introduction

Business Process Management (BPM) is positioned as an important management practice. It provides organizations with a means of increasing competitiveness and sustainability in time of market uncertainty, increasing globalization and constantly changing business conditions (Rosemann & De Bruin, 2007). In addition to this, a Gartner study (Gartner, 2005) has identified BPM as the number one business priority.

BPM is a process-centered approach towards management, originating from – among others – Business Process Reengineering and Total Quality Management. Over roughly the last two decades, a substantial amount of energy and time has been devoted to defining, researching and applying the concept in practice. Numerous approaches towards, and implementations of, BPM can be found in practice and are described in literature. In addition, several approaches to measuring Business Process Management Maturity (BPMM) are developed.

Oddly enough, this considerable body of literature practically lacks insight into the type of organizations actually adopting BPM. A literature review (Van Wijk, 2008) on this topic has preceded the research project. An excerpt of this literature review is presented in Chapter 2. As this literature review served as an important input to the design of this research, this introduction is brief and does not include the research design. This research design is presented later as it logically follows from this literature review.

1.1 Problem statement and relevance

The literature review (Van Wijk, 2008) reveals a substantial gap in literature regarding the adoption of BPM. The actual adoption of BPM by organizations in practice, its extent and especially its driving factors are currently underexposed. Insights into the type of organizations adopting BPM and ultimately the main drivers towards BPM adoption are lacking. Research relating the – extent of – adoption of BPM to business characteristics (sector, size etc.) or strategy is to say the least, immature and very limited or virtually non-existent.

Gaining insight into the organizational characteristics influencing their BPM adoption is of great interest to both theory and to this research's industry partner; Deloitte Consulting. Deloitte has BPM as one of its service offerings. Gaining insights into the application of BPM in practice could provide grip in the acquisition efforts of new BPM clients to Deloitte. For science, it would be interesting to find out where BPM is actually applied.

1.2 Research structure

The remainder of this report is structured according to logical steps in which the research has been conducted. Resulting in the following report and research structure.

Chapter 2 will, as mentioned above, provide a brief overview of the literature study that formed the foundation of this research.

In Chapter 3, this is followed by a more detailed description of the research design, its research questions and strategy. Also a conceptual model is presented in this chapter.

Chapter 4 introduces the coding framework and a set of case studies. These case studies serve a twofold objective. Firstly, they provide qualitative insights into BPM projects – the unit of analysis – and the organizations in which those projects are carried out. Secondly, the cases serve as an input to the development of a coding framework applied to code a larger set of BPM projects to allow for a quantitative analysis.

Preceded by an overview of the results in Chapter 5, a discussion is presented in Chapter 6. Subsequently, conclusions are drawn in Chapter 7. This final chapter also relates the gained insights of this research to both scientific research and practice.

2 Literature review

As mentioned in the first chapter, the research is based upon a systematic literature review (Van Wijk, 2008) of the existing knowledge base in the field of BPM. This chapter summarizes this literature review, beginning with a description of the methodology applied and the literature research questions. Finally, the results of the literature review are presented.

2.1 Literature review methodology

To arrive at the literature review results as presented later in this chapter, several steps were taken. Initially, literature research questions were formulated. Based upon these research questions, scientific literature was searched through several databases accessible from the Eindhoven University of Technology (TU/e). To do so, ABI/Inform, Google Scholar and INSPEC were used. This resulted in a long list of potentially useful articles. Based upon a set of criteria, the long list consisting of fifty-two entries was reduced to a short list of twenty articles. These articles served as input to the literature synthesis.

2.2 Literature review research questions

The main aim of this review was to gain insight into the knowledge base in the field of BPM and the organizations adopting it. Anticipating the observed limited scientific attention to the actual adoption of BPM, these research questions are deliberately formulated broadly. Hence, attention was paid to the drivers for adoption and implementation of BPM approaches and the maturity of those implementations. Additionally, the possible benefits of implementing BPM were investigated. The benefits of BPM could point in the direction of a certain type of organization that would benefit most of BPM and is therefore more likely to apply it.

Consequently, the following research questions provided structure to the literature review.

1. *What is BPM?*
2. *What research that relates business characteristics or strategic management to BPM adoption is present?*
3. *What are the claimed benefits of implementing BPM?*
4. *Is empirical evidence for the effects of implementing BPM on organizational performance available?*
5. *How can the extent of the implementation - or adoption - of BPM be measured?*

2.3 Literature review synthesis

This paragraph presents a synthesis of the literature found in an attempt to answer the research questions stated in the preceding paragraph.

2.3.1 What is BPM?

There is considerable ambiguity when it comes to defining BPM (Pritchard & Armistead, 1999) and a precise and commonly agreed-upon definition is not available (Vergidis *et al*., 2008). For this reason, this section works towards a definition of BPM.

2.3.1.1 Business processes defined

Before a discussion of BPM and its definitions in literature can start, some hint towards a definition of a business process itself is needed. Based upon an apparent agreement in the views of many authors (Armistead & Machin, 1998; Gulledge & Sommer, 2002; Van Wijk, 2008; Vergidis *et al*., 2008; Zairi, 1997), a business process can be defined as:

A "concept of a series of interrelated activities, crossing functional boundaries, with specific inputs and outputs" (Armistead & Machin, 1998).

Business processes are dynamic, as pointed out by Gulledge & Sommer (2002). With this notion of business processes in mind, the concept of BPM can be discussed.

2.3.1.2 The roots of Business Process Management

Business Process Management is based on earlier management philosophies. Total Quality Management (TQM) in the 1980s and Business Process Reengineering (BPR) in the 1990s form the roots of BPM (Hung, 2006). Hammer & Stanton (1999) attribute the increased managerial attention to processes to the reengineering trend. That could have resulted in the appearance of process enterprises. Another ground for the shifted attention to business processes can be found in the IT improvements of the 1980s. Those brought managerial control of enterprise-wide processes within reach (Gulledge & Sommer, 2002; Hung, 2006).

Despite similarities in their roots, BPR is significantly different from BPM. This difference is found in the fact that BPM addresses ongoing management, instead of one-off, transient projects (Armistead & Machin, 1997). TQM, on the other hand, is concerned with the identification, management and review processes (Armistead & Machin, 1998). Then, BPM can be seen as the integration of BPR and TQM (Hung, 2006), which classifies BPM as an approach to analyze and improve or redesign business processes.

2.3.1.3 Elements of Business Process Management

On a high level, BPM can be characterized by three main elements; continuous improvement, process reengineering and benchmarking (Hung, 2006). On a lower and more practical level, another list of elements of BPM can be identified. It can be concluded that some agreement regarding the steps toward BPM is present (Van Wijk, 2008).

The *identification* of core – key, or major – processes is according to many authors (DeToro & McCabe, 1997; Elzinga *et al*., 1995; Pritchard & Armistead, 1999) the start of a practical BPM cycle. A possibly preceding step is pointed out by Elzinga *et al*. (1995), who mention the establishment and communication of guiding principles as the very first step.

Secondly, general *documentation* of processes is conducted. This is done through mapping and documentation of core processes (Zairi, 1997), or the development of a process architecture (Pritchard & Armistead, 1999). Selection of a process to study takes place in a subsequent step.

In consecutive steps, *measurement* based on process metrics is advocated by virtually all authors. Process *improvement* opportunities are identified and implemented based on these measurements (Elzinga *et al*., 1995; Pritchard & Armistead, 1999; Zairi, 1997).

A *continuous assessment* of the core processes against performance criteria, leading to *continuous improvement* is an elementary component of BPM (DeToro & McCabe, 1997; Elzinga *et al*., 1995; Lee & Dale, 1998; Pritchard & Armistead, 1999; Zairi, 1997).

In addition to these activities directly influencing processes, several "softer" elements of BPM like process ownership and the linkage between processes and the organizational structure are found in some papers.

2.3.1.4 Business Process Management: definitions

The definitions of Business Process Management range from IT-focused views to BPM as a "holistic management practice" (Rosemann & De Bruin, 2007). The analysis and improvement of business processes is a focal point in the definitions of many authors (Elzinga *et al*., 1995; Lee & Dale, 1998; Zairi, 1997). A further application of BPM is in the management of processes on an ongoing basis (Armistead & Machin, 1997).

Of a more recent date are more "holistic" perspectives on BPM, reflected in definitions presented by Pritchard & Armistead (1999) and Hung (2006). This holistic view implies continuous evaluation and improvement to increase performance against strategic goals supported by human resources and process-oriented information systems (Willaert *et al*., 2007). Hence, it constitutes a complete management approach.

Besides holistic, the main strands running through the found definitions are that BPM is horizontal (DeToro & McCabe, 1997), cross-functional (Lee & Dale, 1998), or integrated (Hung, 2006), structured (Lee & Dale, 1998; Zairi, 1997), customer focused (DeToro & McCabe, 1997; Hung, 2006; Lee & Dale, 1998) and involves continuous improvement (Armistead & Machin, 1997; Elzinga *et al*., 1995; Hung, 2006; Zairi, 1997). As all these characteristics are brought about in at least one definition of BPM, a definition incorporating all these seems desirable. The following definition – adapted from Hung (2006) – matches the list of characteristics:

"BPM is an integrated management philosophy and set of practices that includes incremental change and radical change in business process, and emphasizes continuous improvement, customer satisfaction, and employee involvement."

Despite this apparent agreement, it remains to be seen whether practice also goes as far as taking BPM as a management principle. This opposed to an approach to solely analyze and improve processes, as presented by Zairi (1997). He defines BPM as:

"BPM is a structured approach to analyze and continually improve fundamental activities such as manufacturing, marketing, communications and other major elements of a company's operation."

The application of a definition like the one by Zairi (1997) does still not exclude the holistic management approach nature of BPM. Lee & Dale (1998), for instance, take a roughly similar definition to BPM as Zairi (1997). They note explicitly that BPM could bring significant benefits to companies, provided that a cross-functional and process-oriented management is present to reap those benefits. This again points towards a more holistic view on BPM and a tight link or similarity between the concepts of BPM and BPO. Holistic BPM shows great similarities to BPO (Willaert *et al*., 2007). This is also reflected by Reijers (2006), who states that BPO is a focus on the improvement of entire chains of business processes, often ranging from client to client. As BPM defined as a process analysis and improvement approach needs to be supported by a process orientation in management, BPO is implicitly incorporated in BPM. Henceforth, BPO and BPM are regarded as largely intertwined concepts and a holistic view on BPM is adopted.

2.3.2 Business characteristics, strategic management and BPM

As an initial scan of the literature revealed, little research on the considerations of organizations adopting BPM has been conducted. According to Pritchard & Armistead (1999), there are few real clues as to the type of organization adopting BPM. In spite of that, some hints can be found.

Organizational size was indicated as a possibly existing factor, even though it was insignificant in their research (Pritchard & Armistead, 1999). Likewise, a distinction between public- and private organizations did not show a noticeable influence. However, their research was not primarily aimed at uncovering differences concerning BPM between different types of organizations, even though this topic was briefly discussed. Considering the year of publication of this article, a significant change could have occurred and more research regarding this topic could have been conducted.

Nevertheless, a thorough search only revealed a study by McCormack (2001) examining the degree of BPO in certain manufacturing sectors, an investigation of BPM application in public sector or service organizations (Vergidis *et al*., 2008) and research into the application of BPM in the public sector (Gulledge & Sommer, 2002). None of these articles explicitly motivates why certain organizations are more likely to implement BPM than others. Neither does any of these articles compare different organizational sectors with regard to their BPM approach. In a practical and explorative investigation, Elzinga *et al*., (1995) do compare different industries but do not scrutinize the observed differences. Moreover, this research is of considerable age.

Another hint towards the influence of business characteristics on BPM can be found in McCormack (2001), who developed a measurement method for the extent of BPO. This author suggests that smaller manufacturing companies tended to score better than larger ones, implying that those companies were better at BPO. Service companies seem to score better compared to manufacturing companies. The author comes up with "natural BPO" as a possible explanation for this. This based on the assertion that service companies are by nature more in touch with their customers on a day-to-day basis. Something similar holds for smaller manufacturing companies, due to the smaller size and number of employees, managers' jobs are more stretched over the entire process. But again, a comparison of different types of organizations was not the aim of the research and is not actively investigated.

There is undoubtedly a theoretical link possible between strategic management and BPM (Kiraka & Manning, 2005). For instance in the process measures and their performance criteria. Moreover, several authors (Hung, 2006; Lee & Dale, 1998) mention strategic alignment as a crucial part of BPM and it is included in Rosemann & De Bruin's (2007) BPMM. Hammer & Stanton (1999) take this one step further in stating that the move to a process enterprise should be connected to an overarching strategic initiative and come up with several examples of this. A similar statement is made by Pritchard & Armistead (1999).

Still, the influence of strategy on BPM is hardly studied and certainly underexposed. This is in fact the case for all organizational characteristics like industry sector, size and strategy. As brought to light in the preceding discussion, a comprehensive answer to this literature review research question is not – yet – to be found in literature at present. Even clear hypotheses cannot be derived. Hence, a significant gap in literature exists.

2.3.3 **Benefits of BPM**

Literature presenting insights into the adoption of BPM is limited, demonstrating a need for other means of gaining insights into the considerations of organizations whether or not to adopt BPM. One of those means is to investigate what benefits an organization could reap from adopting BPM.

An abundance of benefits is alleged to BPM and mentioned in literature. Besides an increase in organizational effectiveness (Armistead, Pritchard & Machin, 1999) or competitive advantage in general (Gulledge & Sommer, 2002; Hung, 2006), more specific benefits are mentioned extensively. An overview (Van Wijk, 2008) of the different benefits includes among others shortened time to market (Gulledge & Sommer, 2002; Hammer & Stanton, 1999), cost reduction (Armistead & Machin, 1997) and improved quality (Armistead & Machin, 1997; Pritchard & Armistead 1999).

As can be observed, there are numerous acclaimed benefits of BPM. However, the danger in this is that through the growing popularity of business processes in practice – as reflected by the increased usage of the word "process" in everyday business language (Zairi, 1997) – all kinds of benefits achieved are attributed to the notion of BPM. Whether BPM actually brings measurable benefits is discussed in more detail in the next section.

Whether benefits are independent is another question that could be raised. Certain benefits can be the result of others (Van Wijk, 2008). For instance cost reductions can be the result of better cross-functional working or sub-optimization reduction.

Despite these critical remarks, it stands out that BPM seems to yield higher customer satisfaction. This is, indeed, an important benefit that could eventually enhance organizational effectiveness and yield competitive advantage. The other significant benefit found is in the reduction of sub-optimization through improved cross-functional working, which can yield a whole array of benefits to the organization. All in all, it seems like the benefits of BPM are applicable to basically every type of organization. This would partially exclude the benefits as a determining factor for differences in BPM adoption and implementation between different types of organizations, given that every organization benefits from cost reductions and increased customer satisfaction and responsiveness. On the other hand could be argued that an increased responsiveness might be of more value to organizations operating in exceptionally dynamic markets or pursuing a particular strategy. Anyhow, hard conclusions as to what organizations are more likely to implement BPM cannot be drawn based on the benefits of implementing it.

2.3.4 Effects of BPM on organizational performance

As can be observed from the answer to the previous question, numerous benefits are ascribed to BPM and for a number of these benefits some type of evidence is presented. Whether the adoption of BPM also attributes to the bottom line, organizational performance, is another question. Research relating BPM to competitive advantage is scarce. Of the articles found, two relate BPM – or BPO – to business performance.

BPO is found to affect overall business performance positively in a questionnaire study by McCormack (2001) among U.S. manufacturing firms. Companies with strong measures of BPO also showed better esprit de corps, better cross-functional orientation and less inter functional conflict compared to companies with lower measures of BPO.

Hung (2006) takes a slightly different approach. Through two core concepts in the successfulness of BPM implementation – process alignment and people involvement – the positive impact of BPM on organizational performance is tested. The author demonstrates a statistically significant association of those two core concepts of BPM to organizational performance. Given the studies design, a causal relationship could not be proven.

2.3.5 Measuring the extent of BPM implementation

When discussing the definitions of BPM, it already became noticeable that – the degree of – BPM application can vary over both organizations and time. Therefore, a measure for the extent of BPM adoption is desirable and sought after by a number of researchers. A first attempt to classify organizations depending on their grade and progression of BPM application was made as early as 1999, by Pritchard & Armistead.

This extent of – holistic – BPM adoption can be measured in different ways. Several variations of a Business Process Maturity Model (BPMM) based on the Capability Maturity Model Integration (CMMI) – originally developed to assess software maturity – are proposed (Lee, Lee & Kang, 2007; Rosemann & De Bruin, 2007). Both models are currently still under development and practically applied to a limited extent or not at all.

McCormack (2001) and Willaert *et al.* (2007) do present tested methods of BPO measurement. The model by McCormack is explicitly focused on BPO and has a limited scope, as it only tests three elements of BPM based on ratings on eleven statements. Willaert *et al.*'s (2007) model is more comprehensive and takes a more extensive view towards BPM. Parallels between this model and Rosemann & De Bruin (2007) and McCormack (2001) can be found (Van Wijk, 2008).

Finally, Hammer's (2007) process and enterprise maturity model is not – clearly – CMMI based nor focused on BPO and therefore classified as a third category. His maturity model is primarily based on his long experience with BPM implementations. It is split into a part focusing on an enterprise and its processes. At first sight, one would probably qualify Hammer's Process and Enterprise Maturity Model (PEMM) as exceptional and specifically aligned as a tool to identify improvement options, rather than a comparing tool. Despite this, there are significant areas of agreement between his and others' views (Van Wijk, 2008). Regrettably, the author does not actively link his ideas to the existing body of literature, nor elaborate upon the applicability on a larger scale.

Concluding, as both a rigorous theoretical foundation and experience with the application of the model in practice are required, none of the models really stands out as the ideal approach to measure organizations BPM maturity.

2.4 Literature review conclusions

From this literature review, it can be concluded that very little attention is devoted to the question what drives organizations to BPM. Moreover, a commonly used and popular definition of BPM is not easily found, showing that the field of BPM is still in its infancy (Hung, 2006). Based upon various authors' views, it is concluded that BPM is a holistic management practice which – for successful application – relies on BPO. A definition of BPM is derived from Hung (2006).

Regarding the question what relates business characteristics or strategic management to BPM, the literature review produced limited results. Some hints towards the influence of the organization's industry sector and size are present. Also the importance of strategic alignment is stressed, pointing towards a relationship between BPM and strategy. Despite some attention to the topic, the found literature does not lead to strong hypothesizes to test in further research. It merely shows a significant gap in literature when it comes to the actual adoption of BPM. Moreover, it brings to light that a true answer to this literature research question is not – yet – to be found in literature at present.

Benefits attributed to BPM are abundant, but seem to center around two key benefits. A reduction of sub-optimization through better cross-functional working and increased responsiveness to changeable customer demands. These benefits are to some degree of importance to any organization. As a result, the benefits of BPM do not provide a solid indicator for the likelihood of BPM adoption by certain organizational types.

Two large-scale studies investigating these effects are found; both present a positive association between BPM and organizational performance. However, causality has not been proven due to the study designs of both studies.

Finally, several measurement models for BPM are found. Although the models are mainly grounded in theory, only few of them have been applied in practice. Furthermore, the ones that are applied in practice do come with certain limitations. An ideal one to use in cross-sectional research is not easily identified.

In short, it can be concluded from this review that very little is known of the application of BPM in practice and the type of organizations adopting it.

3 Research design and methodology

In this chapter, the gained insights of the literature review are applied to define the research's goal and scope. First of all, the objective of the research is discussed. Subsequently, research questions are posed, after which a conceptual model is shown and the research model is derived. This chapter ends with the strategy followed during the execution of the research activities.

3.1 Research objective

Based upon the identified gap in literature, the objective of the research is the following:

To enhance the theory surrounding BPM, by gaining insight into the actual form of adoption of BPM in practice in organizations in the Netherlands, in relation to the organizational sector, size, and strategic orientation of those organizations

by means of

a multiple case study in the form of a comparison of BPM projects executed by Deloitte Consulting in a number of Netherlands-based organizations within different organizational sectors.

It stands out from this objective that the main aim of the research is theory development. Before going into details on the method used to reach the aforementioned goal, some terms used in the objective stated need to be elaborated upon.

Firstly; adoption, implementation and *form of adoption* as used above. Adoption and implementation often seem to be used in an interchangeable fashion. However, adoption differs from implementation in a sense that "adoption includes the set of behaviors through which decision makers choose [for example] research to be used by them or by others in their organization." On the other hand "implementation includes the set of behaviors through which managers and other users actually carry out research prescriptions" (Beyer & Trice, 1982). The preceding statements present adoption as a dichotomous decision, assuming that adoption is a discrete event. This seems not very useful in the case of BPM as defined in this research. Westphal *et al*. (1997) note the following in their studies on TQM adoption published in *Administrative Science Quarterly*: "In the case of such innovations as reengineering, matrix management, zero-based budgeting, or total quality management, variation in the form of adoption may be especially high, such that classifying adoption as an either-or proposition becomes somewhat arbitrary. In such cases, it may be more appropriate to explore how organizations define and implement an innovation, rather than simply to predict whether organizations adopt at all." This statement is plausible to hold for BPM as well, given its nature as a management philosophy and a management innovation. Therefore, adoption is defined as both the decision to use a BPM approach in a project and the form and content of the corresponding BPM project.

Another key term in the research objective is the *BPM project*, which refers to the unit of analysis of this research. The choice for BPM projects rather than organizations in general as the unit of analysis is elaborated upon later in this chapter. Characteristics of BPM projects are for example its trigger, objective and the type of processes in focus.

The remainder of this chapter firstly presents more of the underlying argumentations, and secondly, the strategy and most important steps followed to reach the goal set.

3.2 Research questions

Drawing upon the goal of the project, the main research question of the project is the following:

How do characteristics of BPM projects differ when carried out in different types of organizations in the Netherlands?

On a lower level, several sub research questions are to be answered in order to arrive at an answer to the main research question above.

First, a set of research questions aimed at uncovering relationships between BPM and basic organizational characteristics is required. These basic characteristics are derived from the literature review (see Section 2.3.2). More specifically; from the organizational characteristics that are of possible influence to BPM adoption.

Firstly, *organization size* is mentioned earlier by McCormack (2001) and Pritchard & Armistead (1999). McCormack's (2001) notion that smaller organizations score higher on BPO and the existence of "natural BPO" provides possible ground for this characteristic as being distinctive in BPM adoption.

The industry sector is another possibly influential organizational characteristic. There is a downside of comparing BPM projects characteristics with the general industry sector of the organization in which it was carried out. The number of different industry sectors yields too many alternatives. Therefore, the industry sector is split up in two meaningful characteristics based on the literature found.

The *profit motive* is one of these characteristics related to the industry sector. Whether an organization has a profit or non-profit objective is mentioned as influential by several authors (Pritchard & Armistead, 1999; Gulledge & Sommer, 2002). A difference between profit and non-profit organizations would be hardly surprising as non-profit organizations – generally – do not have to compete. These organizations could be much less interested in improving their business processes to reap the aforementioned benefits of BPM.

Whether an organization's dominant activity is *manufacturing or non-manufacturing* – i.e. service – is possibly of influence as well. The service industry is pointed out as lagging behind in BPM (Vergidis *et al*., 2008). Core processes of manufacturing organizations are often of a tangible nature, as opposed to non-manufacturing – or service – organizations. This difference could influence BPM. For instance, it is logical to assume that modeling intangible processes requires more efforts or specific skills. As a consequence, professionals i.e. Deloitte practitioners could be called in to assist when an organization is attempting to obtain grip on intangible processes. Concluding, this leads to the following sub research questions:

Do characteristics of BPM projects differ when carried out in large compared to small organizations?

Do characteristics of BPM projects differ when carried out in non-profit compared to other – profit – organizations?

Do characteristics of BPM projects differ when carried out in manufacturing compared to non-manufacturing organizations?

Additionally, the organization's *strategy* can be considered. Other studies found relationships between strategic orientations and the locus of IT value within the value chain (Tallon, 2007).

Thereby linking organizational strategy to differences in operational management. When regarding BPM as a strategically important practice and related to operations, it is likely that differences regarding BPM can be found between organizations having different strategies.

Strategy has "many variables of interest – price, production technology, product line breadth, product innovation, forward integration, advertising, and financial policy, to name just a few – and must generally assume that all combinations are possible" (Miles & Snow, 2003). Thus, to be able to draw comparisons between organizations with different strategies, a classification of strategies is inevitable. This is in line with Miles & Snow (2003) who state that a "classification scheme helps to bring order to an otherwise cluttered conceptual landscape."

Several typologies to classify organizations based on their strategic orientation exist and are presented by – among others – Miles & Snow (1978), Porter (1985) and Treacy & Wiersema (1995). All three typologies define three viable strategic foci. Tallon (2007) states that Treacy & Wiersema's typology mappes Porter's. Even though the three typologies seem to overlap to a large extent, differences do exist. Of the three typologies mentioned, both Miles & Snow's (1978) and Treacy & Wiersema's (1995) typologies clearly define both the *where* and *how* an organization with a certain strategic orientation should compete. Porter (1985), on the other hand, seems to mix up the *where* and *how* of competition. Miles & Snow's (1978) and Treacy & Wiersema's (1995) typologies are both grounded in practice rather than literature and are very much the same. There is not one that stands out as being either the most applicable or most rigorously developed. Treacy & Wiersema's (1995) typology is recently used in research published in high-level journals by Tallon (2007) in his study on IT value and Bendoly *et al*. (2007) in theirs on performance metric portfolios. Henceforth, the value disciplines typology by Treacy & Wiersema (1995) will be applied in this research to describe the organizations strategic orientation. Finally, it is worthwhile to note that a strategic orientation reflects a *predominant* strategic orientation, as an organization will usually try to maintain threshold standards in the other two areas (Kaplan & Norton, 2000). Hence, an organization is likely to focus on either operational excellence, customer intimacy or product leadership without ignoring the other two.

Kaplan & Norton (2000) indicate that organizations pursuing operational excellence typically accrue cost savings by means of operational efficiencies and process improvements. Several authors in the BPM field (Lee & Dale, 1998; Hung, 2006) explicitly call for alignment between BPM and strategy in the implementation of BPM. The importance of alignment between business processes and organization strategy is stressed in the BPR field as well (Ascari *et al*., 1995; Edwards & Peppard, 1994, 1997). Hence, organizational strategy is likely to be of influence to BPM and BPM projects. This leads to the following and last research question, which reads as follows:

Do characteristics of BPM projects differ when carried out in organizations focused on operational excellence, customer intimacy and product leadership?

With answers to the sub research questions the main research question can be adequately answered.

3.3 Conceptual model

While theory development – rather than theory assessment – is the objective of the research and the applied approach presented by Eisenhardt (1989) does not advocate a conceptual model, it is used nonetheless. The aim of the conceptual model is not to provide a set of hypothesized relations to be tested, but serves as a means to focus the research efforts. Based on the earlier conducted literature review, several organizational characteristics are identified that possibly have an influence on an organization's approach towards BPM. Those organizational

characteristics are reflected in the sub research questions above and depicted in the conceptual model (see Figure 3-1) which is applied in this research.

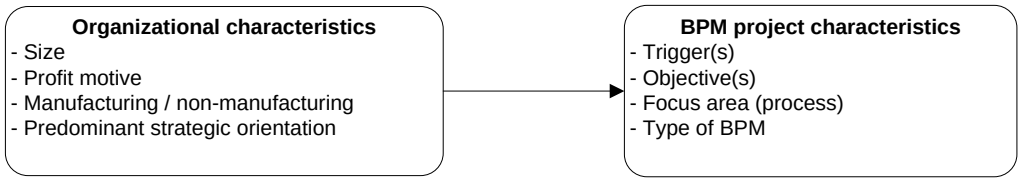

Figure 3-1: Conceptual model

Organizational characteristics:

- Size
- Profit motive
- Manufacturing / non-manufacturing
- Predominant strategic orientation

BPM project characteristics:

- Trigger(s)
- Objective(s)
- Focus area (process)
- Type of BPM

3.4 BPM project characteristics

The BPM project characteristics considered are discussed in more detail in this paragraph as those do not follow directly from either the literature review or the sub research questions posed.

A *trigger* for initiation is a basic project characteristic. An overarching strategic initiative is possibly of influence on BPM projects and functions as such a trigger. Both Pritchard & Armistead (1999) and Hammer & Stanton (1999) advice that BPM should be implemented as part of an overarching strategic initiative. Hammer & Stanton (1999) mention the implementation of ERP, a post merger integration, or the integration of a supply chain as examples of those strategic initiatives. Still, it is most definitely interesting as both articles only provide limited evidence for this practice. On top of that, if BPM is really implemented as part of an overarching strategic initiative, it could provide a hint that the adoption of BPM is merely aimed at business process improvement as a means – or enabler of other changes – rather than a goal in itself. Another type of trigger could be the desire of an organization's decision makers to gain legitimacy by adopting a normative form of a management innovation (here: BPM) rather than implementing a customized practice for efficiency gains. Research on another management innovation – TQM – by Westphal *et al*. (1997) revealed the existence of such mechanisms. Possibly a similar situation occurs with BPM. This is not explicitly sought after in this research.

Objectives are a basic characteristic of all kind of actions and are therefore part of the BPM project characteristics. Several authors in the BPM field pay attention to objectives – to some extent – either by discussing goals of (Zairi, 1997) or drivers towards (Pritchard & Armistead, 1999) BPM implementations.

The *focus area* of a project is the third project characteristic. As noted earlier, adoption cannot be viewed without taking the form and content into account;. This makes it insufficient to explore the triggers for initiation and objectives of the BPM projects alone, its actual content is of interest as well. It would be interesting to aim for comparisons of the focus areas of BPM projects with the organizational characteristics. Focus area in the context of BPM should unquestionably refer to business processes rather than functional departments. Would, for instance, manufacturing firms more often focus their BPM projects on – more intangible – processes rather than their tangible production processes?

Finally, and perhaps most importantly, *the type of BPM* needs to be considered. It can be noted from the literature on BPM maturity that BPM can be present in an organization to various

extents, ranging from business process modeling to implementing BPM as a complete management approach. Moreover, the literature review (Van Wijk, 2008) showed that the literature on BPM itself spans a wide spectrum ranging from technically to more organizationally focused topics. Technical papers (among others Ebrahim & Irani, 2006; Reijers 2006) describe the more technical solutions to BPM including among others IT and modeling procedures, while other papers focus on for instance governance and BPO (McCormack, 2001). A similar distinction can be made between BPM projects, which could be focused on business process description and/or modeling to increase process awareness and could equally well be aimed at establishing key performance indicators to allow management control and actual management based on processes during their execution. This refers to both the objective of BPM projects and the type of BPM. The type of BPM relates to the elements of BPM – mentioned in Section 2.3.1.3 – and a set of steps in implementing BPM. A discussion on a suitable coding of the type of BPM is covered in Chapter 4.

The critical reader may have observed that one more important aspect of projects has not been mentioned up to now; the result. For both theoretical and practical reasons, this characteristic is not included in the conceptual model. First and foremost, to answer the main research question posed in Section 3.2, it is not required to do so. The focus lies on the start of BPM projects, not the end of it, in which the result might become recognizable. Might, because most – if not all – of the results of a project surface on a longer term, after the consultants have left the client organization. This consideration also leads to the practical reasons. It is hardly possible to grasp the results of a project due to the aforementioned time aspect. In addition, the fact that an organization can hardly be observed ceteris paribus – i.e. assuming nothing else changed influencing the result – interferes with an assessment of results.

3.5 Research method

The project research method is, given the theoretical nature of the research and the immature literature on the topic, based upon a method proposed by Eisenhardt (1989). Her approach is highly iterative and very useful in an explorative research project like this, as it does not require an extensive base of literature nor a complete conceptual model. Formulating hypotheses is explicitly not a starting point of the presented approach. This to keep an open view on what is going to be found.

The research presented in this master's thesis is based on a two-staged model. In the first stage of the research, cases were selected theoretically and investigated using multiple data collection methods for qualitative data, this to achieve triangulation. While the data was collected, analysis was conducted simultaneously. In practice, this means that the first phase of the research, consisting of a multiple case study went through iterations between data collection and analysis. A multiple case study is regarded as being more compelling and thus robust compared to a single case study (Verschuren & Doorewaard, 2000; Yin, 2003). The analysis focus was on within case analysis, resulting in a coding framework. The coding framework is based on the conceptual model, and introduces a set of mutually exclusive and collectively exhaustive 'codes' of those characteristics. Constant testing of the result against new cases was conducted until new cases did not add anything new to the framework. In other words; the cases added last fit into the coding framework.

The analysis of the data was conducted from two different angles in the second stage of the research; within cases and between cases (cross-case). Within case analysis enhances the familiarity with the data while the analysis between cases uncovers possible cross-case patterns. These cross-case patterns were analyzed by clustering several cases with similar characteristics and comparing those clusters. This analysis was conducted quantitatively using all suitable cases rather than a theoretically sampled set. By classifying cases in a uniform fashion, a suitable data set for such an analysis was created. This quantification is suggested as part of the grounded

theory approach by Strauss & Corbin (1990). Through the quantification of a larger set of cases, the concept of theoretical replications was applied.

Here, the qualitative data can play an important role in understanding when a case disconfirms a hypothesis and hence contributes to understanding the "why" of what is happening. This understanding can lead to new or sharpened hypotheses. Moreover, this understanding is important to build internal validity and particularly as the aim of this research will be to arrive at design propositions (Romme, 2003) in which the mechanism plays a crucial role.

Design propositions are a useful means to present the results. These design propositions are, in addition to hypotheses, derived from the research for good reason. For decades, the academic management research has a serious utilization problem (Van Aken, 2004). According to Van Aken (2004), this problem can be mitigated by complementing such research with prescription-driven research, based on the paradigm of the design sciences. In this case, scientific results should be shaped as 'field-tested and grounded technological rules' opposed to description-focused hypotheses. Romme (2003) describes these technological rules as design rules and coins the term design propositions for design "rules" which are not – yet – successfully tested in practice.

Finally, the new findings were compared to existing literature – originating from in- and outside the field of BPM and – of both conflicting and similar nature. By doing so, the internal validity, theoretical level and generalizability are enhanced.

3.6 Research model

The research model (Figure 3-2) is based upon confrontations as proposed by Verschuren & Doorewaard (2007) and reflects the idea of cross-case analysis as proposed by Eisenhardt (1989). By confronting the cases with the conceptual model devised from literature and the resulting coding framework, an analysis is conducted. Through a synthesis of those separate – within – case analyses, a cross-case analysis is made possible.

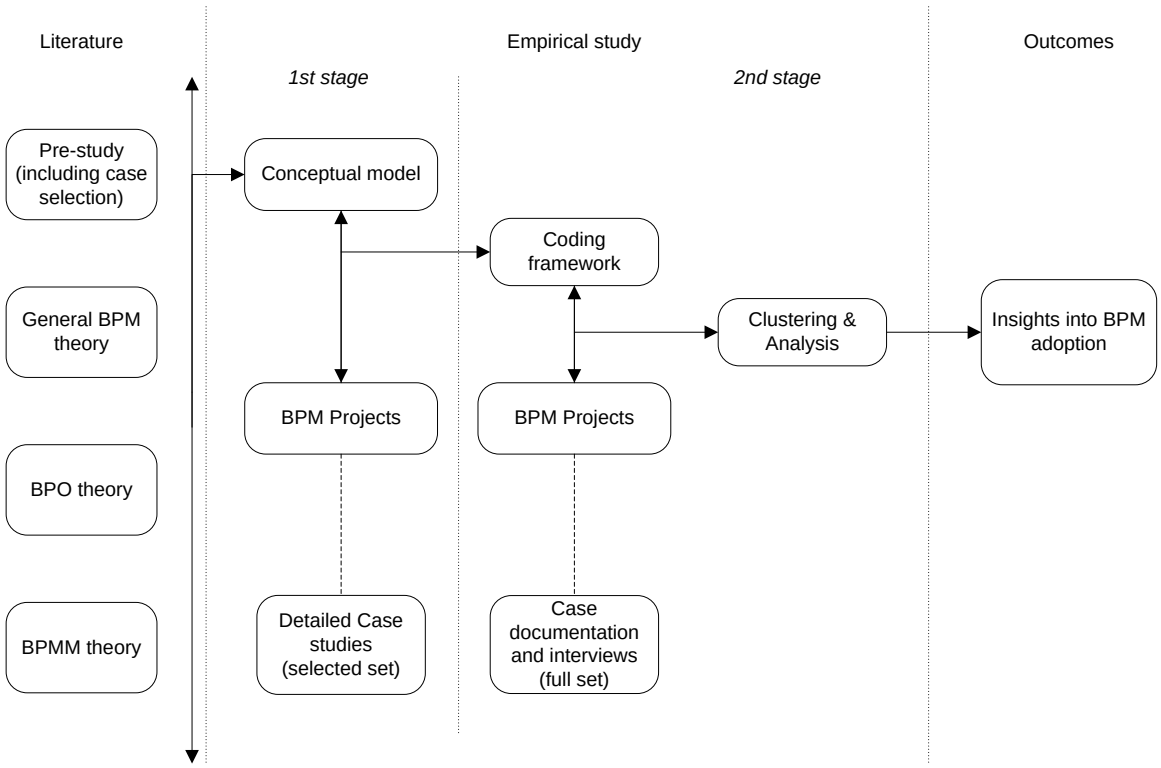

Figure 3-2: Research model (based on Verschuren & Doorewaard, 2005)

It is noteworthy to mention that the composition of the clusters, mentioned in *clustering & analysis*, depends on the sub research question the analysis was aimed to provide an answer to. This means that the composition of clusters varies, dependent upon the sub research question. If, for instance, a sub research question regarding the strategic orientation was analyzed, the clustering of cases is based on the strategic orientation.

3.7 Methodology

This section outlines the methodology used in the first and second stage of the research.

3.7.1 Case selection

As Deloitte Consulting performs numerous projects every year, a structured manner to select which projects are suitable BPM projects is evidently of importance. A set of criteria [C1–C6] to facilitate this selection process is elaborated upon below.

First and foremost, BPM projects – henceforth also referred to as cases – are to the knowledge of the authors not mentioned in scientific literature. Only in management literature can the term BPM project be found (Jeston & Nelis, 2008). These authors come up with four phases of implementing BPM, linked to the BPMM of an organization and explicitly link a BPM project – as the first phase of their implementation model – to a low BPM maturity. This seems logical from an organizational viewpoint, but consulting work is by definition project-based, thus, a relation between low BPM maturity and the initiation of a project is not necessarily there. Moreover, the other phases of implementation mentioned by these authors also require input from consultants, who will in turn work on a project basis in those. Therefore, it needs to be mentioned that a BPM project in this context does not refer to the concept of a BPM project as metioned by Jeston & Nelis (2008).

Given that Jeston & Nelis' (2008) interpretation of a BPM project is not useful here, another definition is required. The definition of BPM applied throughout this report provides a hold. A BPM project conducted by a consulting firm like Deloitte should assist an organization in the implementation of BPM. As noted before, the adoption – or implementation – of BPM is not binary. Therefore, it is unlikely to find projects which are aimed at the implementation of the BPM in its full shape as defined before. When a project is aimed at applying parts of BPM, it should be regarded as a BPM project. Thus, first and foremost, a BPM project should incorporate a focus on business processes [C1].

Projects aimed at modeling processes are viewed as BPM projects when the modeling efforts are aimed to become more than purely a documentation exercise. Even though in this first case actual process management is not present, identifying, describing and modeling processes is the logical starting point for a more extensive application of BPM (Mendling, 2008) and is mentioned by several authors as one of the steps to BPM (among others: Elzinga *et al.*, 1995; Pritchard & Armistead, 1999). Neglecting those cases would have biased the sample considerably, as organizations that are new to BPM and in the first phases of implementation would be disregarded altogether. This leads to the second criterion; a project should facilitate or assist – future – organizational change [C2], hence, bring the organization a step further in the direction of full application of BPM. Note that this criterion excludes pure documentation exercises for certification reasons, as these can hardly be viewed as a step towards management on these processes.

As stated before, the research focuses on organizations based in the Netherlands, therefore only projects conducted within such organizations can be included [C3]. Note that a Dutch branch of a non-Dutch organization complies to this criterion, whereas a branch of a Dutch organization outside of the Netherlands falls outside the scope.

Additionally and finally, a client organization needs to be identifiable [C4]. Even though this may seem obvious, several projects are found during the course of the research project in which

this criterion was not satisfied. This is for instance the case in a government sponsored project aimed to analyze and improve a process running through several non-governmental organizations. In this project, an organization in which the project was carried out is not observable.

Besides these criteria with respect to content, several practical criteria are applied in the selection. In order to have a good chance of finding enough information on a specific project and given the typical employee turnover in a consulting firm, projects needed to be of a recent date to have a reasonable chance of finding participants of the projects. Without the active or passive cooperation of – at least – one of the participants in the project it is hardly possible to obtain the necessary data. Passive cooperation includes the availability of for instance the Curriculum Vitae (CV) of the participant which typically holds a short but concise project description. Those CV's become unavailable when an employee leaves Deloitte. This leads to the criterion that only projects that are finished in 2005 or later are used [C5]. An additional advantage of using a cut-off date is that the participants of the BPM project are likely to be able to remember the required information, also a limitation of the search for projects is achieved.

An additional criterion is needed: at least one of the participants of the project is still working within Deloitte Consulting or another Deloitte firm [C6] as an interview in the second stage of the research is impossible otherwise.

In order to be included, a project needs to comply with all criteria [C1-C6] summarized below:

C1: The project involves a focus on business processes

C2: The project is meant to facilitate or assist – future – organizational change, as opposed to a pure documentation exercise for certification reasons

C3: The project is (partly) conducted within an organization in the Netherlands

C4: A client organization is identifiable

C5: The project is ended in 2005 or later

C6: At least one of the participants of the project is still active within Deloitte

3.7.2 Data collection

As Eisenhardt (1989) presents data collection and analysis as largely intertwined processes, both are discussed together in the following section.

The starting point of the data collection process was a series of interviews with – at least – one of the Deloitte professionals involved in a BPM project. These professionals are targeted based on snowball sampling and an analysis of project descriptions on the CV's of Deloitte employees which are available on the firms intranet. The interviews are naturally part of the data collection but serve a broader objective. As a sufficiently detailed and Deloitte-wide overview of conducted projects is not readily available, it also serves to identify potentially interesting projects. For similar reasons, a document search was conducted. Other data types included in the research are requests for proposals, project proposals, deliverables and evaluations. Also published information like annual reports are referred to with the objective of composing a data set containing the information on the different organizational and BPM project characteristics. The Company.Info database[1] accessible within Deloitte, which is based upon – among others – data supplied by the chamber of commerce was of use as well.

The advantages of using these data types are first of all triangulation, by combining several sources, internal validity can be extended. Moreover, all sources mentioned do not require

[1] http://company.info [accessed: 27-02-2009]

cooperation of the client organization and allow for easier access to data sources. The latter is of use when new insights call for opportunistic data collection resulting in a need for additional information from these sources.

Based on the gathered qualitative data on the earlier mentioned subset of cases, a conceptualization phase is started, aimed at a codification of the interpretation of the constructs in the conceptual model. In this conceptualization, existing literature on for instance BPM and the diffusion of – management – innovation was consulted to help generating the various codes. With the resulting set of – mutually exclusive and collectively exhaustive – 'codes' of the characteristics mentioned in the conceptual model, every case is classified. This allowed a clustering of the projects. As the conducted activities during a project might differ from the proposed project, found in project proposals, the most recent available data was used to classify the projects. The decision on which code to apply to a certain characteristic of a case is not an exact science. For instance the strategic orientation of an organization can usually not be found in one distinct place, hence, a code is based upon the researcher's familiarity with the case gained through within-case analysis.

In order to reduce bias and increase replicability, one of the participants of each project was asked to apply the codes to the project as well. This was done through a semi-structured interview which was – in all but two cases – conducted face-to-face or through telephone. In those two exceptional cases the questions (see Appendix D) were answered via e-mail. All interviewee were invited to answer the questions – shaped as a questionnaire – and comment on their answers to obtain more qualitative data. Those comments were documented. This approach mitigates the weakness of having just one investigator. An additional advantage of this approach is the possibility to make sure that understanding of the concepts exists with the interviewee. It also serves to gather more qualitative data on the "why" of what has happened. The outcomes of the interviews are used during a further statistical analysis. Before the conduction of this analysis, an inter-rater reliability is calculated to assess the agreement between documentation and interviewees. This inter-rater reliability provides a measure for the quality of the framework.

4 Coding framework and case studies

This chapter presents the coding framework, which is based on existing literature and a theoretically selected set of cases. The selection of the projects was aimed to be diverse with respect to both organizational and project characteristics. Organizational characteristics, organization size, organizational type and sector (i.e. profit motive and manufacturing or non-manufacturing) were taken into account.

The case studies served as test-cases; the codes were fine-tuned per construct (characteristic) in order to cover the full range of options uncovered during the case studies. A connecting thread throughout the complete discussion of codes is essentially a trade-off. Both meaningful homogeneity within groups and sufficient aggregation in order to limit the number of different codes is aimed for. An upper limit of four to five codes per characteristic is required in order to have sufficiently large sub groups in the statistical analysis.

Data collection for the case studies included at least one interview with a project participant and desk research of available documentation within Deloitte. The interviewees were confronted with the case descriptions (see Appendix B) and asked to validate those. In case of disagreements, this chapter represents the interviewee's view. As the cases had to be cleansed of organization data, the cases are labeled [A–I] for the sake of readability. A preliminary version of the coding framework (see Appendix C) was presented to a group of Deloitte practitioners during a workshop to obtain feedback.

This chapter commences with a description of the codes used for the organizational characteristics and continues with a similar discussion for the project characteristics. As the classification of the organizational characteristics is, compared to the project characteristics, already rather clear, the focus of the case analysis is on the BPM project characteristics. All characteristics are discussed in order of their appearance in the preceding chapters.

The chapter is ended by an assessment of the inter-rater reliability of the codes applied to the full set of thirty three projects. This inter-rater reliability can be regarded as a measure of the quality of the coding framework.

4.1 Organization size

Several possible distinctions between organizations can be made concerning size. For instance turnover or the number of employees can be used as a measure. Research in adjacent fields including ERP (Hall *et al*., 1967; Laukkanen *et al*., 2007) takes the number of employees as a measure of organizational size. For these reasons, it is chosen to measure organizational size by the number of employees. Laukkanen *et al*. (2007) use three categories; large (> 250 employees), medium (50 > employees > 250) and small organizations (< 50 employees).

All organizational characteristics are determined based on the organizational entity in which the project was conducted, as the unit of analysis of the research is the BPM project. This implies that in case of a project conducted within a strategic business unit (SBU) of a larger multi-divisional organization, the organizational characteristics are only based upon that SBU. This in contrast to projects conducted within the central unit of a multi-divisional organization, in which the total organization is regarded as representative for the organizational characteristics.

In line with the abovementioned, for projects conducted within multi-divisional organizations, the size of the entity in which the project is conducted is taken as the size of the organization. Hence, if a project is carried out in one division of such an organization, the number of employees in the division is taken. On the other hand, the project took place on corporate level, the total number of employees is used.

Due to Deloitte's focus on larger accounts, the smallest organizations are not heavily represented in the sample. Therefore, 250 employees are taken as the cut-off value to distinguish between

medium and small organizations. When an organization employs 1000 employees or more, it is considered large, while an organization employing 10000 employees or more is classified as very large. As a conclusion, the codes can be expressed as follows:

- Small: number of employees < 250
- Medium: 250 ≤ number of employees < 1000
- Large: 1000 ≤ number of employees < 10000
- Very large: number of employees ≥ 10000

4.2 Profit motive

In comparison to the preceding set of codes, not nearly as much elaboration is required to explain the coding of this second characteristic. Whether an organization is a profit, or non-profit organization is generally easily determined based on the type of organization and its profile.

Hence, the coding is simple:

- Profit
- Non-profit

4.3 Manufacturing / non-manufacturing

Despite of the apparent simplicity of this classification, some exceptions need to be mentioned. More and more organizations offer services combined with their tangible products, especially in the high-tech area. Some of them even gain most of their profits from services. Initially, it is doubtful whether to classify these manufacturers' service organizations as non-manufacturing organizations.

It is chosen to judge by the main category the organization is classified in by the Dutch chamber of commerce (KVK). Based on the industry codes the nature the organization is easily established. Organizations in the Energy and Utilities industry are considered manufacturing organizations, even though for instance electricity has a intangible nature.

Concluding, the codes:

- Manufacturing
- Non-manufacturing i.e. service

4.4 Predominant strategic orientation

The strategic orientation is based upon Treacy & Wiersema (1995). The authors come up with the following descriptions for their value disciplines and their corresponding value proposition based on Tallon (2007):

- Operational excellence: "providing customers with reliable products or services at competitive prices and delivered with minimal difficulty or inconvenience." In short, the value proposition is to deliver a product or service at best total cost.
- Customer intimacy: "segmenting and targeting markets precisely and then tailoring offerings to match exactly the demands of those niches. Companies that excel in customer intimacy combine detailed customer knowledge with operational flexibility so they can respond quickly to almost any need, from customizing a product to fulfilling special requests." Hence the value proposed is characterized as best total solution delivery.
- Product leadership: "offering leading-edge products and services that consistently enhance the customer's use or application of the product, thereby making rivals' goods obsolete." This leads to the value proposition: best product, i.e. product or service.

As mentioned before, an organization is likely to focus on one value discipline without ignoring the other two. Consequently, an organization will usually try to maintain threshold standards in the other two areas (Kaplan & Norton, 2000). Therefore, the value disciplines are referred to as the *predominant* strategic orientation. Considered as such, the desired attribute of being mutually exclusive and collectively exhaustive applies. Note that like organization size, the entity in which the project was carried out is taken as the client-organization. This is a necessary requirement as some multi-divisional organizations have very diverse divisions and corresponding strategies.

An assumption with this classification is that none of the organizations is "stuck in the middle" (Porter, 1985), i.e. does not have a predominant strategic orientation. Another assumption is that it is actually possible to map every organization on this strategy typology. Other studies applying this typology (Bendoly *et al*., 2007; Tallon, 2007) apply survey results and cluster analysis to do so, bringing the advantage of a quantitative data-founded classification. As the data to apply such a method is a limiting factor in this research, the classification on this characteristic was done by studying documentation on the organization including annual reports and the organization's website.

4.5 Triggers

The nine cases studied have diverse types of triggers, which are depicted in Table 4-1.

Case	Trigger	Overarching initiative
A: Municipal authority	New regulations demand shorter lead times and additional services	Yes
B: Market supervision institute	Stakeholders demand a better quality of work	No
C: Financial service provider #1	Unsatisfactory performance in the follow-up of leads	No
D: Private equity firm	Unsuccessful ERP implementation	Yes
E: Energy solutions provider	Benchmark shows moderate performance on process, costs and environmental effects	No
F: Entertainment producer	Strategic shift from a licensee to a vertical integration supply chain model	Yes
G: Financial service provider #2	Authority requires compliance to FEC/CDD regulations	No
H: Soft drink producer	ERP implementations in a number of plants shows inefficiencies	Yes
I: Insurance company	New product launch in cooperation with partner organizations	Yes

Table 4-1: Triggers of BPM project cases

As can be observed, the triggers are ranging from external ones like new regulations and a benchmark, to a drive to improve business value through the launch of new products or the implementation of an ERP system. Triggers for BPM are hardly described in scientific literature. Nevertheless, the variety found is reflected by Jeston & Nelis (2008), who mention seven categories of triggers – or drivers – in their management book on BPM. Their classification includes categories like *processes*, *organization* and *IT*, but also *employees* and *management* and the examples given show similarities to triggers found in the cases. However, the aim was for at

most five or preferably only four categories per (project) characteristic. Thus, their categorization is aside from lacking a scientific ground, not very practical either.

An *overarching strategic initiative* can trigger a BPM project as well. This overarching strategic initiative, as coined by Hammer & Stanton (1999) includes business events like merger or supply chain integration and more directly IT related events as an ERP implementation or a move to e-commerce. All of these examples are mentioned by Jeston & Nelis (2008) as well. Hammer & Stanton (1999) recommend the move to a process enterprise to be connected to such an overarching strategic initiative. This recommendation essentially makes an overarching strategic initiative a trigger. Unfortunately, except for coining the term and providing examples, the authors do not explicitly define an overarching strategic initiative. Practically, it is difficult to assess whether an overarching initiative is strategic or not. Therefore, it is chosen to classify a BPM project as either triggered by – or part of – an overarching (strategic) initiative or as an independent project.

This results in the following codes:

- Part of an overarching (strategic) initiative
- Independent project

4.6 Objectives

The objective of each of the cases is listed in Table 4-2. Even though those objectives unquestionably show resemblances to the triggers discussed above, notable differences do exist. A comparison of the triggers and objectives would be an interesting topic, but falls outside the scope of this particular research. For instance in the cases of the energy solutions producer (E) and the entertainment producer (F), business processes are not the initial trigger but are – part of – the objective of the project nonetheless. In the latter, IT served as the trigger. Moreover, as becomes clear in the case of the municipal authority (A), the opposite occurs as well, the trigger is more of a business type, while the objective includes both processes and IT.

Case	Objective	Business	Technical
A: Municipal authority	Implement a mid-office and supporting IT based on to-be business process models	Business conformance	Yes
B: Market supervision institute	Secure the primary processes to enable quality monitoring, management and improvement	Business performance	No
C: Financial service provider #1	Improve client experience, reduce lead time of following up leads, an optimized sales funnel and clear division of roles between local and central offices	Business performance	No
D: Private equity firm	Get both the ERP system and the business processes it supports in control	Business performance	Yes
E: Energy solutions provider	Become best-in-class and low-cost energy provider and establish a process and market oriented culture	Business performance	No
F: Entertainment producer	Enable the transition from primarily licensed to primarily vertical distribution business processes	Business performance	Yes
G: Financial service provider #2	Comply with official regulations to prevent Financial Economic Crime (FEC) and screen	Business conformance	No

	all clients		
H: Soft drink producer	Harmonize processes for all twelve bottlers to support uniform ERP implementation and best practice transfer	Business performance	Yes
I: Insurance company	Assess the impact of the cooperation with partners in a new product on IT, processes and organization, develop and implement the new processes	Business performance	No

Table 4-2: Objectives of BPM project cases

In fact, a division between business and technical objectives seems indeed an interesting one. A similar division was spotted in the literature (see Chapter 2). It is also pointed out that definitions of BPM range from IT-focused views to BPM as a holistic practice. Given that some of the roots of BPM trace back to IT improvements of the 1980's (Gulledge & Sommer, 2002; Hung, 2006), it is appealing to assess whether BPM projects also show a significant IT component. Thus, whether the objective of a BPM project is of a technical (IT), or a more organizational (business) nature is an interesting matter.

When applying the division between technical and business objectives, two things become clear. In most cases the objective of the project is twofold; both business and technology are aimed for. Case D provides a example of this. Regaining control over the primary processes is a business objective and an ERP system implementation is aimed for as well. Hence, the option to code a case as having both a business and technical objective is required. A business objective does not exclude a technical objective, nor the other way around. Moreover, all activities should ideally contribute to the business. Therefore, it is chosen to split the objectives in two subcategories: business and technology.

4.6.1 **Business objectives**

Business objectives are certainly not uniform, as is exemplified by case G of a financial service provider. In this case, the objective to comply with rules and regulations does not correspond to increasing the performance of the business. Hence, the category of business objectives should essentially be split in two:

Business performance, referring to the business objectives containing improvements of the value delivery of an organization to its stakeholders. Cases B, C, D, E, F, H and I clearly fall into this category.

Business conformance to sustain the business, and for instance comply with regulations.

This coding seems not fully mutually exclusive and collectively exhaustive, as the combination of both is not included. This issue is dealt with in the following way. Conformance needs can be a trigger to a BPM project, if the triggered project is aimed to result in better business performance, it is regarded as having a business performance objective. In this situation, the rules and regulations functioned as the trigger, rather than the objective. The business conformance code is applied when conformance is the business objective and business performance improvement is not aimed for. For instance a project aimed at the development of compliance processes – requiring resources without directly adding value to the organization – has a business conformance objective.

This results in the following codes:

- Business performance: improve competitive position
- Business conformance: conform to external pressures i.e. rules & regulation

4.6.2 Technical objectives

Technology in the context of BPM projects comes in the form of IT. Obviously, technical objective refers to the objective of the project. Hence, a technical solution used in the project is not representing a technical objective. Neither does the configuration of an existing ERP system as in Case E. Cases A, D, F and H have technology implementation as – one of – the objectives of the project. Especially Case D is an interesting example of a project with a technical objective. Here, are large set of business processes was modeled and improved in order to facilitate the implementation of an ERP system, which in turn was one of the key objectives of the project.

Note that when a projects does not have a technical objective in itself, but its overarching (strategic) initiative has a technical objective, it is classified as having a technical objective nonetheless.

This results in the following coding of the technical objective:

- Yes: Implementation of IT is a goal of the project or of its overarching initiative.
- No: No IT involvement or IT solely as solution in the project rather than the goal of the project.

4.7 Focus area

Table 4-3 depicts the processes in focus for the various cases.

Case	Focus area	Process type
A: Municipal authority	Routing and assessment processes of permit requests	Core
B: Market supervision institute	All primary processes including purchasing processes	Core & support (both)
C: Financial service provider #1	Sales processes, more specifically the lead management process	Core
D: Private equity firm	All basic primary processes and some processes related to administration	Core & support (both)
E: Energy solutions provider	Operations and maintenance, also sales and HRM	Core & support (both)
F: Entertainment producer	Product creation, marketing & planning, manufacturing, distribution and credit management processes (procure to pay)	Core
G: Financial service provider #2	Administrative, FEC prevention processes	Support
H: Soft drink producer	All value creating back-office, front-office and supply chain processes	Core
I: Insurance company	Sales, calculation, control, administration and calculation processes related to a new product	Core & support (both)

Table 4-3: Focus area of BPM project cases

As can be observed from Table 4-3, a large variety in focus areas is observed. Based on these, it is a hard task to define a suitable classification. Several possible classifications are presented in literature. However, this does not solve the issue in advance. As Earl & Kahn (1994) point out in

response to the significant number of process typologies; "process may be a more complex construct than it first seems."

Several typologies of – production – technologies were published since the late 1960's (among others Perrow, 1967; Thompson, 1967; Woodward, 1965). Unfortunately, these typologies are all not very applicable in this context, as their applicability is mostly restricted to physical production processes. Especially the applicability of Perrow's and Woodward's is limited for service organizations, if not absent. This is also pointed out in a comparison by Mills & Margulies (1980). According to their comparison; the third one (Thompson, 1967) seems to be applicable to service organizations. Still, it suffers from another issue like the other two do. As these typologies are rather organization typologies based on production technologies than business process typologies, applicability in this context is limited. The reason for this can be found in the number of processes in focus of the BPM projects. In most cases there are several. In some cases (B, D, E and I), administrative processes are in focus in addition to production processes. Applying one of the aforementioned typologies on more than one process per BPM project would complicate matters to the impossible. This argumentation holds in fact for any classification of processes based on distinctions like for instance its routine or the number of cases put through. Hence, another typology is needed.

Edwards & Peppard (1997) present another categorization aimed at identifying processes which are of such strategic importance to an organization to be candidates for BPR. It classifies business processes in four categories like "competitive processes" and "transformation processes". Classifying project focus areas in a similar fashion requires deep knowledge of the client organizations strategy, which is almost impossible to apply to the cases in Table 4-3.

A distinction between primary, support and managerial processes as presented by Van der Aalst & Van Hee (2004) is more feasible. In this classification, primary processes are the value creating processes and are customer oriented. For example production, purchasing of raw materials and design fit in this group. The support, or secondary, processes represent all processes aimed at supporting the primary ones. This group includes for instance HR processes and purchasing of machinery. Finally, the third group of processes, managerial processes, covers processes that direct and coordinate the other two groups of processes, for instance objective setting. A largely similar classification using different names but similar objectives is used within Deloitte (Stemerding & Van Dijk, 2005).

When this categorization is applied on the cases in Table 4-3, it occurs that the classification is not fully mutually exclusive. For instance Case E includes both the operational processes of the generation division (primary processes) and HRM and maintenance processes (support processes), requiring an additional class in the analysis: both.

Another issue occurs with case G, where administrative and compliance processes are the focus. Van der Aalst & Van Hee (2004) are not addressing this type of business processes. Based on the consideration that these processes are needed to be able to continue the primary processes, they fit into the second category of support processes.

Whether managerial processes are actually the focus of a BPM project would remain to be seen as none of the cases fits into this category. Therefore, a classification of core processes, support processes or a combination of the two should suffice.

Hence, the following coding is opted for:

- Core processes: the value creating processes
- Support processes: the processes supporting the core processes
- Both: both core and support processes

4.8 Type of BPM

The triggers, objectives and the focus area of the project will be framed, the only remaining question is how to code *what* is happening in a BPM project. Earlier, in Section 2.3.1.3, it was mentioned that a clear set of steps towards a holistic BPM organization is non-existent. A business process life cycle could mitigate this deficiency. A commonly agreed-upon BPM life cycle could not be found.

Van der Aalst (2004) presents a BPM life cycle which seems desirable as it contains four clear phases (diagnosis, process design, system configuration & process enactment). Descriptions of the concrete activities in the various phases are given and scientific ground is underlying it. Still, it comes at downsides; particularly its focus on IT is troublesome in the context of this research. The life cycle is aimed to lead to the implementation of some sort of Business Process Management System (BPMS). The implementation of IT supporting business processes like a BPMS is most certainly not the objective of all of the studied cases, as only half of the cases has a technical objective (see Section 4.6.2).

Case	Type of BPM	Life cycle phase[2]
A: Municipal authority	Design and modeling of to-be processes, including roles and work descriptions and the implementation of those processes with supporting IT	Analysis, design, implementation, (monitoring)
B: Market supervision institute	Identification and modeling of processes, including roles as swim lanes	Analysis, design, (implementation)
C: Financial service provider #1	Redesign and modeling of to-be processes, including roles and work descriptions and the implementation of those processes with supporting IT.	Evaluation, design, implementation
D: Private equity firm	Identification, modeling and implementation of processes including roles and process ownership and KPI's on process level	Analysis, design, implementation
E: Energy solutions provider	Modeling as-is processes, redesigning those processes including harmonization over the different plants, implementation in organization through workshops and – later – in the ERP system	Analysis, design, implementation, evaluation
F: Entertainment producer	Modeling as-is processes, fit-gap analysis of as-is processes with the processes of the desired model of another business unit, redesign processes (to-be). Also implementation and workshops	Analysis, design, (implementation)
G: Financial service provider #2	Design and modeling of the new FEC prevention processes, including working instructions and training material for implementation, this implementation was guided, monitored and improved during the first weeks of operation.	Analysis, design, implementation, enactment, monitoring, evaluation
H: Soft drink producer	Modeling, validation and improvement (standardization) of processes and documentation, processes were implemented.	Analysis, design and implementation.

[2] Phases listed between brackets were found in documentation, but not confirmed during the validation interviews.

I: Insurance company	Modeling of to-be processes and implementation of those. The processes of the first real cases was supported.	Analysis, design, implementation, enactment.

Table 4-4: Type of BPM in BPM project cases

A better candidate is presented in the BPM literature by zur Mühlen (2004). This model is shown in a slightly simplified shape in Figure 4-1 and is extracted from Mendling (2008). Interestingly, this model is both founded in scientific literature and well-documented. All phases are clearly defined and seem to be a good trade-off between detail and general applicability. When applied to the cases in Table 4-4, an interesting pattern occurs.

Almost all cases have implementation or design as the type i.e. phase of BPM in the end of the project. Also, analysis is a phase of interest in almost every BPM project. Here, it is important to note that external consultants always need to get familiar with the situation in the client organization through a sort of analysis. So, the definition of *analysis* needs to be applied carefully in order to distinguish between analysis as the client organizations' first step to BPM or as a common start of a consulting project.

That only two cases (G,I) are classified as – partly – in the enactment phase, seems to originate from the consulting project nature. It is unlikely to have consulting assistance in the enactment of processes as this refers to the "regular" business activities, except enactment in the shape of a pilot test as is the case in those cases.

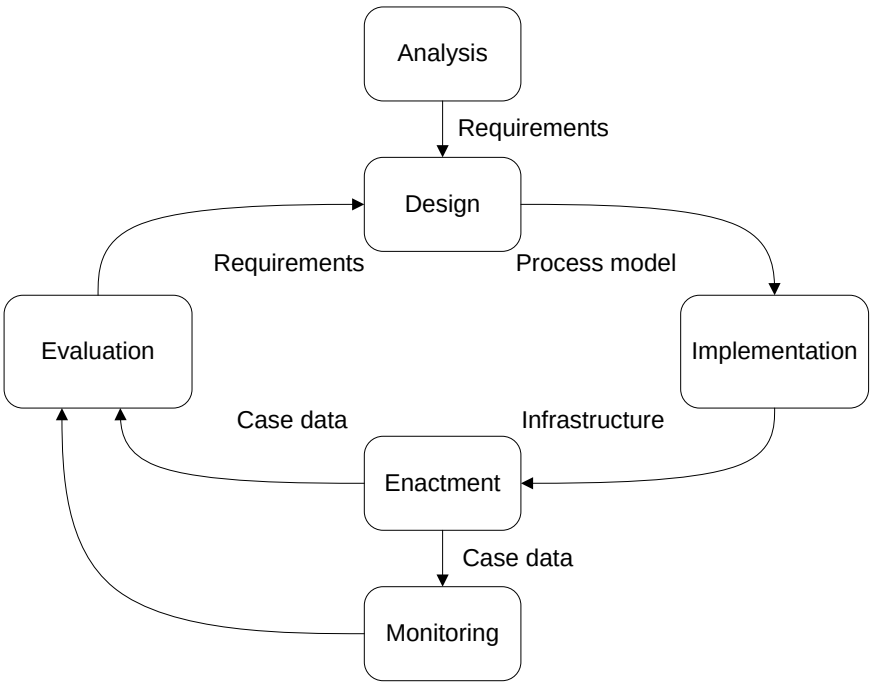

Figure 4-1: Business process management life cycle (Mendling, 2008)

In order not to spill data that could prove to be of interest later during the analysis, all phases in focus of the BPM project are registered. This implies that every single phase is coded as a dichotomous value. The codes presented below and their descriptions are obtained from Mendling (2008) and correspond with the model as depicted in Figure 4-1.

- *Analysis*: The business process management life cycle begins with an analysis activity. This analysis covers both the environment of the process and the organization structure. The output of this step is a set of requirements for the business process such as performance goals or intentions.

- *Design*: These requirements drive the subsequent design activity. The design includes the identification of process activities, the definition of their order, the assignment of resources to activities and the definition of the organization structure. These different aspects of process design are typically formalized as a business process model. This model can be tested in a simulation if it meets the design requirements.
- *Implementation*: The process model is then taken as input for implementation. In this phase, the infrastructure for the business process is set up. This includes training of staff, provision of a dedicated work infrastructure or the technical implementation and configuration of software. If the process execution is to be supported by dedicated information systems, the process model is used as a blueprint for the implementation.
- *Enactment*: As soon as the implementation is completed, the actual enactment of the process can begin. In this phase the dedicated infrastructure is used to handle individual cases covered by the business process. The enactment produces information such as consumption of time, resources and materials for each handled case. This data can be used as input for two subsequent activities: monitoring and evaluation.
- *Monitoring* is a continuous activity that is performed with respect to each individual case. Depending on process metrics, for instance maximum waiting time for a certain process activity, monitoring triggers respective counteractions if such a metric indicates a problematic situation.
- *Evaluation*, on the other hand, considers case data on an aggregated level. The performance results are compared with the original requirements and sources of further improvement are discussed. Evaluation thus leads to new requirements that are taken as input in the next turn of the business process management life cycle.

Concluding, all organizational and BPM project characteristics can be expressed as mutually exclusive and collectively exhaustive codes. The full set of BPM projects can be coded on a – mainly – nominal data scale, and the second stage of the research can be initiated with the aforementioned as starting point.

4.9 Inter-rater reliability

As the data obtained from the semi-structured interviews with Deloitte practitioners is based on first-hand experience, rather than second-hand documentation, it is used as input to the statistical analysis. Another reason for this is that documentation is in several occasions ex-ante, whereas the practitioner possesses ex-post information. Hence, the practitioner knows what actually happened. Obviously, these differences in perspective can be a source of disagreement between the codes assigned by the researcher based upon the documentation and the classifications assigned by the interviewees. This is for instance the case when the proposed project in the proposal was not carried out as anticipated. Here the ex-ante and ex-post view of the project will differ.

To assess the reliability of this data, the codes assigned based upon the documentation are compared to the codes obtained during the interviews. This inter-rater reliability is measured through the Cohen's Kappa (K) statistic (Cohen, 1981). Its value ranges from -1 (no agreement) and 0 (no agreement above chance) to 1 (representing perfect agreement). This metric can be used in case of more than two categories. But, as pointed out by Sim & Wright (2005), this does lead to a lower K value. Hence, the K values for the organizational size, predominant strategic orientation and focus area are possibly underestimated. This K is calculated for every organizational and project characteristic. The results are tabulated in Table 4-5.

Characteristic	Cohen's Kappa (K)
Organization size	0,517
Profit motive	1,000
Manufacturing	0,921
Predominant strategic orientation	0,472
Trigger	0,570
Business objective	0,921
Technical objective	0,578
Focus area	0,486
Type of BPM: Analysis	0,532
Type of BPM: Design	0,653
Type of BPM: Implementation	0,598
Type of BPM: Enactment	1,000
Type of BPM: Monitoring	0,713
Type of BPM: Evaluation	0,507
$K_{overall}$	**0,701**

Table 4-5: Cohen's Kappa

For two characteristics, the agreement is 100% leading to a K of 1,000. Even the lowest value obtained (K = 0,472 for the strategic orientation) is still classified as moderate agreement (Landis & Koch, 1977). Given the warning by Sim & Wright (2005) this is very satisfactory. It is not surprising that the strategic orientation resulted in the least agreement (22 agreements out of 33) as it is rather abstract. Moreover, even though the codes only allow one strategic orientation to be selected, several organizations are either stuck in the middle or seem to focus on two orientations rather than one.

Eight of the eleven disagreements concerned client organizations that are SBU's. This complicates the classification based on documentation as those are mainly focused on the overall strategy of the organization, rather than the strategy of every specific SBU.

A suitable method to assess the overall K of the entire dataset is proposed by Fleiss *et al*. (2003), whose formula is based on the standard errors of the individual K values. As this formula cannot cope with a K of 1,000, these two instances – or outliers – are not included in the calculation of $K_{overall}$, leading to a $K_{overall}$ of 0,701. This demonstrates the robustness of the conclusion that the inter-rater reliability shows substantial agreement. Hence, based upon the established agreement, it can be concluded that the reliability of the assigned codes is high. As a consequence, additional support is provided to the applicability of the coding framework.

5 Results

With the coding framework as a guideline, the documentation of the found projects was assessed and codes were assigned. As discussed in the previous chapter, the inter-rater reliability was assessed and proved satisfactory.

Originally, sixty-seven BPM projects were identified and put on the long-list. Those cases complied with all six selection criteria (see Section 3.7.1). During the assessment of the available documentation, it turned out that only thirty-six cases could be coded. The other cases were omitted from the list due to a lack of sufficient documentation. One case was removed as it turned out that a client organization was not identifiable. Of the thirty-five remaining cases, two projects were discarded from the data set. Reason for this was that the semi-structured interview of the second stage could not be conducted due to a lack of availability of the required interviewee. As a result, thirty-three BPM projects remained for further analysis in the second stage of the research.

The results of this analysis are presented in this chapter. Univariate results are discussed first, followed by the presentation of multivariate results obtained through statistical analysis.

5.1 Univariate results

As already became apparent in the case study discussion of Chapter 4, the BPM projects vary to a large extent and represent client organizations from various types of organizations (see Figure 5-1). The classification of industries is based upon an internal classification used within Deloitte.

After coding of the projects and their corresponding client organizations, nine were classified as manufacturing organizations, while twenty-four of them have services as their primary activity. Ten client organizations have a non-profit objective. Size varies largely from about 25 up to over 40.000 employees. Finally, the strategic orientation of the organizations is neatly distributed over operational excellence (11), customer intimacy (14) and product leadership (8). Given this rather equal distribution of the organizations over the various organizational characteristics, the composition of this – randomly drawn – sample does not provide any information on organizational characteristics influencing BPM project characteristics. A complete listing of the codes applied to the organizations in which the studied BPM projects were carried out can be found in Appendix E.

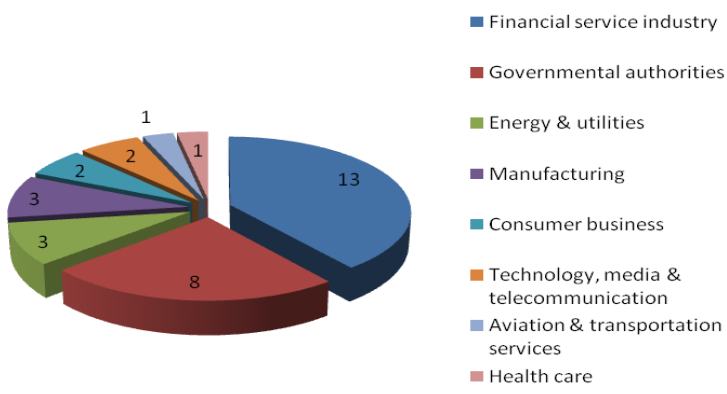

Figure 5-1: Division of industries in the sample

As great a variety can also be found in the studied projects. These include explicit process improvement initiatives, ERP or CRM implementations, and even a new product launch.

It stands out that a slight majority of the projects was triggered as part of an overarching strategic initiative (18) as opposed to an independent project (15).

Business performance improvement is the main objective in a large majority of the projects (25), in the other eight projects, business conformance was the objective.

Moreover, almost half of the projects (16) had a technical objective. Note that when a technical objective is lacking, this does not by definition imply that the project could have been conducted

without IT. IT might be used as a solution in the project. In three cases, implementation of adapted IT was a part of the non-technical project. Here, IT served as a solution to support the main objective of the BPM project; business performance improvement through better processes.

A focus on core processes is found in the lion's share of the cases. As many as fifteen BPM projects were solely focused on core processes, another fifteen projects had a focus on both core and support processes. Support processes are found to be the sole focus in only three projects. Interestingly, all those projects have a business conformance objective.

Almost all projects (31) go through a BPM design phase, in most cases preceded by BPM analysis. This phase is in scope in twenty-nine cases, in two cases as the sole one. On average, 3,03 BPM phases are in scope.

The implementation phase is the final phase in twelve BPM projects. Note that BPM implementation is never carried out without a preceding BPM design phase in scope. Eight BPM projects are carried out further than the implementation phase.

Six projects (G,I,R,S,ZC,ZD) reach the BPM enactment phase, five of those also go through BPM monitoring. The BPM enactment phase in these projects mainly takes the shape of pilot testing of newly designed processes or coaching of the human resources during the execution of new processes during the first real cases. In one particular case (G), a financial service institution was assisted in BPM enactment to process a Customer Due Diligence (CDD) on all its existing customers. In fact, a huge backlog of work was processed with newly designed processes. Those processes are also implemented to screen new customers of this organization.

BPM monitoring is part of seven of the studied BPM projects. Naturally in the projects which also involved BPM enactment. The single exception is case I, this project was ended after the BPM enactment phase. In contrast to the other cases going through BPM enactment, the enactment phase of case I was not started to assess efficiency. As the project involved new and complex processes that are part of the market introduction of a new product, the enactment of those processes was coached by Deloitte professionals.

Interestingly, two BPM projects (X,ZB) did have a BPM monitoring phase, even though enactment was not in scope. Here, Deloitte was not actively involved in the actual enactment of processes, but did assist the organization in monitoring their process' performance nonetheless.

Finally, BPM evaluation proved to be both a starting point and an end to some of the studied BPM projects. Eight BPM projects had BPM evaluation in scope. In two cases (C,E) this was clearly a starting point, as can be observed from the fact that BPM enactment and monitoring were not in scope. Based on the interviews, two more projects went through a BPM evaluation phase (R,S). Interestingly, those projects are also the only four project characterized as projects following a Lean Six Sigma methodology. Lean Six Sigma is a commonly applied set of practices aimed at improved process quality and reduction of wastes produced.

In two of them (C,S), BPM evaluation completely replaced BPM analysis. These projects were both conducted in – different – financial services institutions and had a limited scope centered around a small set of commercial core processes.

With these univariate results in mind, the multivariate analysis will be presented in the following paragraph.

5.2 Correlation tests and multivariate analysis

With the validated categorical data set as an input, the statistical analysis aimed to identify correlations between the organizational and BPM project characteristics is conducted.

All characteristics are coded on a categorical, mainly nominal scale, except for organizational size which has an underlying rank order and is thus measured on an ordinal scale. The categorical nature of the data excludes the possibility of applying non-parametric tests like rank sum tests.

To mitigate the lack of applicability of this branch of tests, specific tests for this type of data exist.

Specifically Chi-square (χ^2) contingency tests and Fisher's exact tests are useful to uncover correlations between variables measured on a nominal scale. Basically, those tests calculate the likelihood that a correlation exists between the rows and the columns of a contingency table. In such a table, these rows and columns represent the two variables tested for correlation. However, the assumptions of both tests cannot fully be met. There is some debate about the assumptions of the χ^2 contingency test (Campbell, 2007). It requires aside from independence between rows and columns, at least that less than 20% of the cells of the contingency table have an expected value less than 5. Some even require every cell to have an expected value of at least 5 (Cochran, 1952). Given the total number of cases (n = 33), it is not surprising that this criterion is not met in any of the conducted tests.

Additionally, Fleiss *et al*. (2003) recommend the application of Yates' (1934) correction for continuity. This to compensate the χ^2 test's assumption that the nominal data can be approximated by the continuous χ^2 distribution. This application is much disputed for its negative impact on the power of the statistical tests (Grizzle, 1967). SPSS automatically conducts the χ^2 test, both with and without the continuity adjustment for 2x2 contingency tables. The sample size is small. Hence, the tests suffer from lower statistical power and a further reduction due to the application of a disputable correction is tempting to refrain from. This, however, does come at the expense of the robustness of the tests. Additionally, Yates correction of continuity cannot be applied to contingency tables larger than 2x2, which is – for instance – the case for all tests relating the organization size (four categories) to BPM project characteristics. Hence, as the correction is both debatable and not applicable to all tests, it is refrained from completely.

The Fisher's exact test (or Fisher-Irwin test), on the other hand, is capable of handling small sample sizes. But, it assumes that the number of successes – i.e. for instance the number of projects with a technical objective – is fixed. This is certainly not the case. As there is generally no suitable alternative, some authors (among others: Montgomery & Runger, 2003) recommend to use it nonetheless.

Based on these considerations, methodological triangulation is opted for and both tests are conducted. With the help of SPSS, the exact test procedure for the χ^2tests is used. In all cases, the null hypothesis that the row-and-column classifications are independent is tested. Hence, in case the *P*-value falls below the desired value of α, the null hypothesis is rejected. Then, it can be concluded that there is some interaction – or correlation – between the variable the rows and the columns of the contingency table and their corresponding variables.

Both types of tests yielded largely similar *P*-values and at least the same results on the same levels of α. A single exception was the correlation between organizational size and the life cycle phase BPM implementation, which yielded a *P*-value of 0,060 in the χ^2test. Thus, the null hypothesis was rejected at α = 0,10 as 0,10 > 0,060 > 0,05. The Fisher exact test produced a *P*-value of 0,050, hence a failure to reject the null hypothesis at the α = 0,05 level. Therefore, in this single case a statistically significant rejection of the null hypothesis is a certainty, but the value of α remains questionable.

An additional Kruskal-Wallis test was performed for the tests involving organization size. This test is specifically aimed at contingency tables composed of an ordinal and a nominal variable. Again, the resulting *P*-values are only slightly different from the ones obtained from other tests, the outcomes are completely alike those of the Fisher exact tests. This agreement between several statistical methods strengthens the confidence in the outcomes. A summary of those outcomes is depicted in Table 5-1, while a complete overview can be found in Appendix F.

	Organization size	Profit motive	Manufacturing / non-manufacturing	Predominant strategic orientation
Trigger	0,680	0,722	1,000	**0,017 ***
Business objective	1,000	0,164	0,394	0,768
Technical objective	0,569	0,161	0,708	**0,038 ***
Focus area	0,299	0,138	0,855	**0,053 ****
Type of BPM: Analysis	**0,029 ***	0,289	1,000	0,328
Type of BPM: Design	0,330	1,000	0,477	0,324
Type of BPM: Implementation	**0,050 ***	0,461	0,425	0,346
Type of BPM: Enactment	0,446	0,640	1,000	0,729
Type of BPM: Monitoring	**0,062 ****	0,646	0,642	0,417
Type of BPM: Evaluation	**0,025 ***	0,397	1,000	0,653
Type of BPM: No. of phases	0,596	0,705	0,321	0,619

Table 5-1: Fisher's exact test results (*P*-values) * = significant at α = 0,05; ** = significant at α = 0,10.

The strategic orientation correlates highly significantly with the trigger and technical objective of the BPM projects. Both correlations are significant at the α = 0,05 level. A weaker correlation is found between the strategic orientation and the focus area of the corresponding projects.

Organization size correlates significantly with the type of BPM. Hence, the null hypothesis is rejected. For three phases of the BPM life cycle, the correlation found is significant at α = 0,05, and an additional phase showed a correlation at the α = 0,10 level.

Most strikingly, the null hypotheses that the organizational characteristics profit motive and manufacturing or non-manufacturing did not have a correlation with the BPM project characteristics could not nearly be rejected. Hence, a statistically significant correlation between those organizational characteristics and the BPM projects could not be found.

As can be observed, the α = 0,05 level is applied and obviously preferred. However, the two significant correlations found at the α = 0,10 level are close to significance at the α = 0,05 level. Those correlations need to be considered with caution. Therefore, these correlations will only be discussed briefly in the remaining part of this report as little importance can be attached to them.

The statistical operations and the resulting statistics presented in this chapter serve as an input to further discussion. This discussion can be found in the following chapter.

6 Discussion

The statistical analysis presented in the preceding chapter has presented several correlations between organizational and BPM project characteristics. This chapter sheds more light onto the correlations found and elaborates upon possible relations with existing literature. Contingency tables serve as an additional data source (see Appendix G). In some cases, the original qualitative data is revisited in order to gain more understanding of the results obtained. This chapter discusses the organizational characteristics organization size, profit motive, manufacturing and strategic orientation respectively.

6.1 Organization size

Organization size was found to correlate significantly with various BPM life cycle phases, being analysis, implementation, monitoring and evaluation.

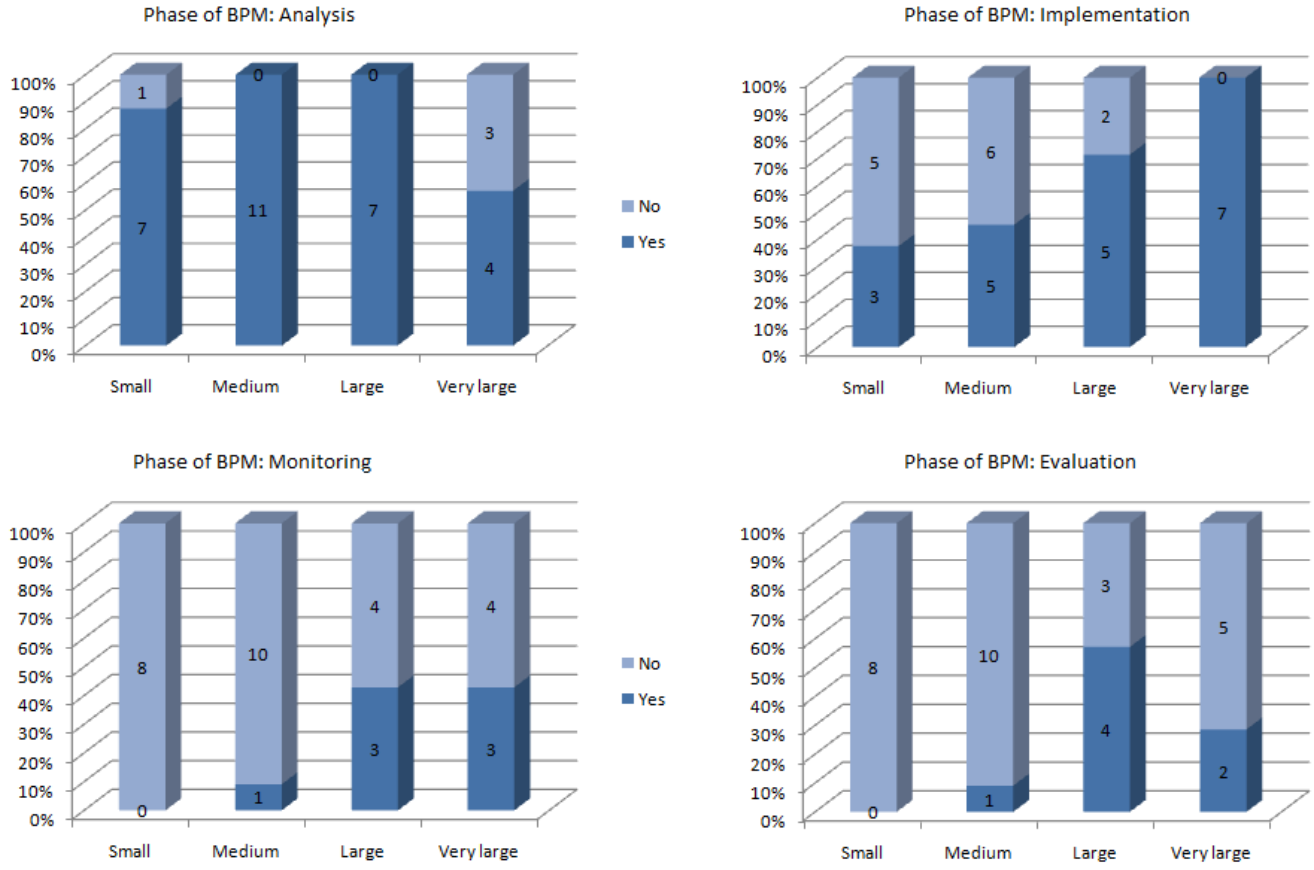

Figure 6-1: Phase of BPM vs. organization size

From Figure 6-1, it can be observed that the larger the organization, the more the advanced phases of the BPM life cycle – i.e. monitoring, evaluation and to a lesser extent implementation – seem to be involved. This while the initial phase of the life cycle (BPM analysis) seems to be relatively more often out-of-scope. One case of a small organization seems to disconfirm this observed trend. However, in this case (O), the BPM project had a pure process modeling – i.e. BPM design – objective for compliance reasons. BPM analysis was already conducted by an external auditor. Hence, deriving process requirements through BPM analysis and evaluation was simply not required.

The substitution of BPM analysis with BPM evaluation in the BPM project's scope points at a second turn of the BPM life cycle. Improvement of existing – and already defined – processes was indeed the objective in two of these three cases without analysis. All this points in the

direction that the larger the organization, the more likely that such an organization is more progressed when it comes to BPM, hence, should have a higher BPM maturity.

Possibly, part of the found correlation can be found in the presence of Lean Six Sigma (LSS) (BPM) projects. When observing the original case data, it stands out that those LSS projects mentioned earlier were all conducted in large (E,R) or very large organizations (C,S). A common characteristic of these LSS projects is the role BPM evaluation phase as starting point.

In relation to the preceding, a case can be made for McCormack's (2001) assertion that small organizations tend to have some sort of "natural BPO." As noted, there possibly exists a relationship between organization size and the progression in BPM, reflected by the statistical results stemming from very large organizations. On top of that, when revisiting the qualitative data on the original cases, three cases of small organizations are of interest. The main strand running through these cases (B,D,J) is a start with BPM from scratch in small – but quickly growing – organizations. The organizations concerned employ between 25 and 250 employees and lacked a solid overview over their processes at the start of the project. This leads to the hypothesis that there is, indeed, something like "natural BPO" (McCormack, 2001). In addition, a turning point of some kind would exist for growing organizations. At this point, the complexity of the organization leads to the decline of "natural BPO" and a more structured approach – i.e. BPM – towards the business processes is required.

As pointed out in Paragraph 5.2, the other BPM project characteristics did not seem to correlate with organization size.

6.2 Profit motive

The profit motive of the client organization did not yield any significant correlations with the BPM project characteristics. Hence, support for Gulledge & Sommer's (2002) view that the public sector lags behind in BPM was not found. It seems plausible to cast some doubt regarding this allegedly lost ground of the non-profit sector concerning BPM. Possibly the non-profit sector has made up its arrears compared to the profit sector since 2002.

6.3 Manufacturing / non-manufacturing

Compared to the preceding discussion concerning the profit motive of the client organization, the main focus in terms of manufacturing or non-manufacturing – e.g. service – yields even fewer correlation. The statistical analysis did not produce any *P*-value under 0,321, and thus well above any commonly accepted value of α.

This finding is at least noteworthy, as the limited literature base that does devote attention to organizational characteristics more or less claims that service – e.g. non-manufacturing organizations – are less advanced when it comes to BPM. Additionally, those organizations cope with serious difficulties implementing it (Vergidis *et al*., 2008).

6.4 Predominant strategic orientation

In contrast to the preceding two organizational characteristics discussed, the strategic orientation shows several statistically significant correlations with BPM project characteristics.

The highly significant correlation of the strategic orientation with the trigger of the BPM projects stands out. As mentioned before, especially operational excellence organizations differ significantly from the other strategic orientations in their correlation with the trigger. More specifically, based on the statistics and Figure 6-2, operational excellence organizations seem to initiate more independent projects compared to the other two strategic orientations. Hence, it seems like operational excellence organizations more often start BPM projects primarily in pursuit of process improvements. This opposed to approaching BPM as a necessity to facilitate other initiatives. Another hint in this direction can be observed in the correlation between the strategic orientation and the technical objective of a BPM project. The significant correlation found for this combination and the underlying contingency table (See Figure 6-2) show that operational excellence organizations start relatively few projects with a technical objective. Hence, these seem to focus the objectives of their BPM projects more explicitly on business processes improvement. This opposed to specifically product leaders.

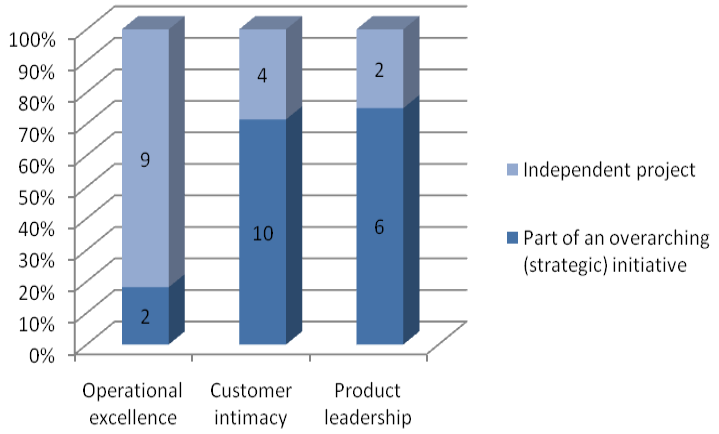

Figure 6-2: Trigger vs. strategic orientation

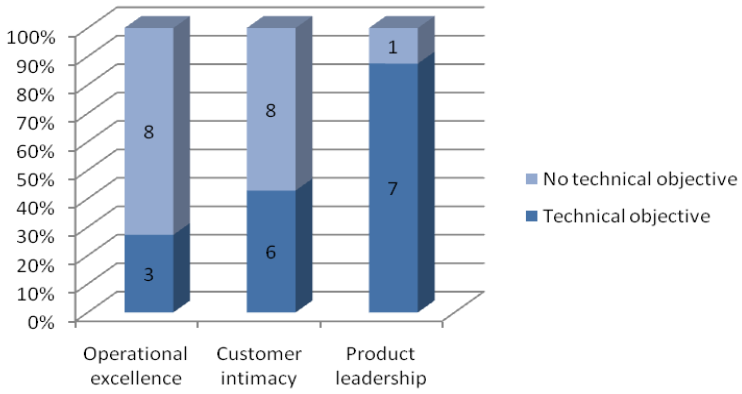

Figure 6-3: Technical objective vs. strategic orientation

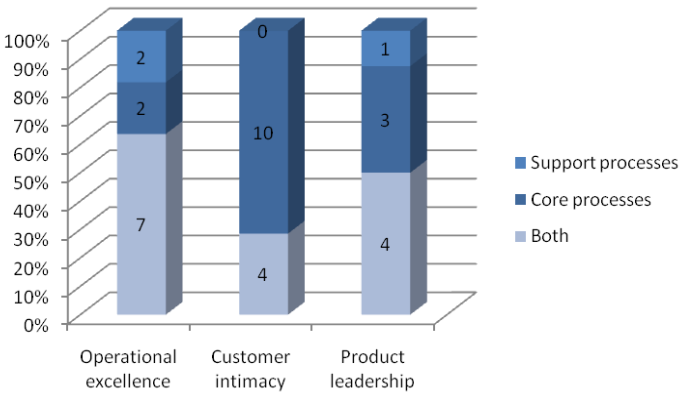

Figure 6-4: Focus area vs. strategic orientation

Although existing research relating to this is rare, the only hint found seems in line with this finding; Kaplan & Norton (2000) indicate that organizations pursuing operational excellence typically accrue cost savings by means of operational efficiencies and process improvements. Hence, it seemed quite logical from the outset of this research that operational excellence organizations could be found to be more interested – and progressed – based on this statement. The presence of organizations pursuing strategies other than operational excellence does not cast doubt on this conclusion. This because the strategic orientation is a predominant one, hence, also organizations pursuing customer

intimacy or product leadership should ideally make efforts to become more operationally excellent.

Regrettably, the BPM phases involved in the projects neither provide additional confirmation nor disconfirm this observation as no statistically significant correlation was found in this respect. Additional evidence in this direction, for instance by a relative absence of BPM analysis in the BPM projects of organizational excellence organizations, would have strengthened the aforementioned assertion.

The focus area of the BPM projects correlates with the strategic orientation to some extent, albeit on a lower significance level ($\alpha = 0{,}10$). As can be observed from Figure 6-4, operational excellence organizations seem to focus their BPM projects relatively more commonly on support processes (or both) compared to other organizations. This finding cannot easily be explained from the quantitative data nor literature. When the original case data is revisited, it turns out that the only cases which were solely focused on support processes all had a business conformance objective. In other words, in all those cases (G, T, ZE), compliance was aimed for. As compliance needs do not stem from the strategic orientation of an organization, it seems wise to ignore this possible correlation. Given that it is both doubtful whether this correlation actually originates from the strategic orientation and is insignificant at the $\alpha = 0{,}05$ level, it is considered spurious.

Other significant correlations involving the strategic orientation were not found.

6.5 Concluding remarks

Concluding, it can be observed that particularly the size of the organization, and its strategic orientation seem to influence the characteristics of BPM projects carried out within those organizations. The organizational characteristics were not found to be of influence at all. With this insight, the following chapter will wrap up the research in a conclusion.

7 Conclusions

In response to an existing gap in literature, this research aimed at relating organizational characteristics to BPM was initiated. The presented research explored BPM projects conducted in practice. An attempt was made to find correlations between organizational characteristics and BPM projects carried out within those organizations.

From initial case studies, it became apparent that a great variety exists within BPM projects and the corresponding client organizations in which the projects are carried out. A coding framework was developed to enable the analysis of thirty-three cases in a structured manner. This framework is based on insights gained from the case studies and existing literature.

A quick overview of the total sample revealed large differences in size and type of industry and all three strategic orientations are represented in substantial numbers. Moreover, it showed that design of processes (BPM design) is the most commonly carried out step in a BPM project. Finally, statistical analysis and visual inspection of the data yielded interesting results.

This final chapter will present an overview of the findings, point out limitations of the results, and relate those to both practice and theory.

7.1 How characteristics of BPM projects differ between different types of organizations

This research's objective was to answer the main research question;

How do characteristics of BPM projects differ when carried out in different types of organizations in the Netherlands?

Following the order of the sub research questions posed in the first chapters of this report, the answer to the main research question will be summarized.

Do characteristics of BPM projects differ when carried out in large compared to small organizations?

Larger organizations are relatively more often focusing their BPM projects on the later and more advanced phases of the BPM life cycle. This indicates a possible relation between organizational size and BPM maturity. The case studies provide additional evidence in this direction as several smaller organizations were starting their BPM efforts with a BPM project. Those projects were – partly – aimed at establishing a clear overview of the main processes conducted by these organizations. Such clearly initial steps to BPM were not found for larger organizations.

The outcomes of the research reveal that organizational size correlates with neither of the other characteristics of BPM projects.

Do characteristics of BPM projects differ when carried out in non-profit compared to other – profit – organizations?

Interestingly, in spite of existing literature pointing in the direction of a difference between profit and non-profit – i.e. governmental – organizations (Gulledge & Sommer, 2002), not a single statistically significant correlation was found relating this organizational characteristic to the characteristics of BPM projects.

Do characteristics of BPM projects differ when carried out in manufacturing compared to non-manufacturing organizations?

The outcomes of this research do not indicate any significant correlation between this organizational characteristic and BPM projects. So, support for the claim made by Vergidis *et al.* (2008) that service organizations are behind in BPM was not found.

Do characteristics of BPM projects differ when carried out in organizations focused on operational excellence, customer intimacy and product leadership?

The strategic orientation of an organization does seem to affect BPM projects largely. This in spite of an almost absolute lack of research relating BPM and strategy. This finding is in line with research by Tallon (2007) nonetheless. He found that strategy does affect operational management decisions.

Organizations predominantly in pursuit of operational excellence seem to initiate relatively few BPM projects as part of larger initiatives compared to other organizations. This indicates a possible difference in approach towards BPM. Where operational excellence organizations seem to have process improvements and process management as their main objective. This opposed to managing processes as an enabler of other initiatives. Finally, the objectives of BPM projects initiated by this group of organizations are much less frequently aimed at the implementation of IT – i.e. have a technical objective – providing additional support to the aforementioned notion.

Concluding, it indeed seems to be the case that BPM project characteristics are influenced by organizational characteristics, in particular organization size and strategic orientation.

7.2 Limitations

Research bears limitations, and this research is no exception. Hence several limitations can be pointed out.

First of all, the sample size (n = 33) is rather small and by taking BPM projects conducted by Deloitte Consulting as a starting point, the sample is not drawn completely randomly. It could be biased in several ways. The Deloitte client base might not be a representative sample of organizations in the Netherlands due to a certain focus of Deloitte's client acquisition. Moreover, the projects might contain a bias due to the image Deloitte has in a certain market. For instance, in some markets Deloitte might be viewed as an outstanding system implementation consulting organization, while another market views Deloitte as an expert on organizational change consultancy. Leading to possibly spurious correlations.

To the defense of the research, it can be pointed out that the representation of the various industries in this research (see Figure 5-1) is in line with the global consulting market shares by client industry. These market shares are presented by Kennedy Information (2008). A comparison can be found in Appendix H. Still, the financial service industry and the public sector seem to be slightly overrepresented in the sample used in this research. This in spite of the fact that these industries make up the largest global consulting market shares (Kennedy Information, 2008).

Secondly, organizations that initiate BPM projects in cooperation with Deloitte explicitly sought for assistance in their BPM efforts. As only those organizations are examined, this might create a biased sample. For instance, it could be that certain organizations are – more – capable of adopting BPM without running into independently insuperable difficulties. The other way

around, certain organizations possibly lack the financial means to call in consulting assistance. Those organizations would – unintentionally – be excluded from the research.

A lack of suitable documentation can provide another sample bias. During the research, several interesting but ill-documented BPM projects were found. Those projects could not be included due to this lack of documentation. Consequently, if certain groups of consultants are documenting their projects better or worse than others, a sample bias might surface. Specific types of BPM projects are possibly under- or overrepresented due to such differences in documentation availability.

Focusing the research on consulting BPM projects as unit of analysis results in another possible bias. The scope of the research is limited to activities that are part of those projects. Hence, this excludes all other – possibly BPM related – activities going on within the client organization. Consequently, it could occur that only a fraction of the BPM activities within an organization are conducted in collaboration with Deloitte. As only these activities are investigated, the results might reflect a biased view of the actual state of BPM in such an organization. In addition to this, BPM projects might not be directly related to BPM adoption in a more general sense.

However, the applied approach is the best possible alternative, given the availability of data on BPM projects conducted by Deloitte professionals and the limited possibilities of alternatives. For example cross sectional surveys outside Deloitte would suffer from the immature research base and the corresponding complications in the necessary codification of research constructs. Moreover, consulting firms are considered to be in a certain race to define which management techniques lead rational management progress (Abrahamson, 1996). Hence, consultants are most certainly in a position to provide interesting insights into the shape of current management progress or innovations, like BPM.

Finally, this research is not aimed to arrive at fully generalizable conclusions. On the contrary, the primary aim is to gain insights into BPM adoption through an exploration of cases. This, in turn, has lead to the derivation of hypotheses. Therefore the research succeeded to fulfill its objective. Assessing the generalizability of those hypotheses could be the subject of a later study.

7.3 Recommendations for further research

This research started with the identification of a large gap in literature and an attempt was made to close this gap. The outcomes of this research provided new insights into correlations between organizational characteristics and their BPM – project – approaches, yet it uncovered many aspects that remain unknown. Therefore, recommendations for further research are provided.

First and foremost, this research and its corresponding hypotheses derived below are based upon BPM projects, hence, the findings require further investigation on an organization level to mitigates this research's limitations and increase generalizability. A verification of the found correlations and resulting hypothesis based on a cross-sectional BPM maturity assessment of organizations would be a welcome addition to this research. This leads to the following derivation of hypotheses for further research.

The phases in scope of the BPM projects pointed in the direction that the larger the organization, the more likely that such an organization is conducting more progressed BPM projects, hence, should be more advanced regarding BPM as well. Therefore, the following hypothesis could be formulated:

H1: Larger organizations are reaching higher levels of BPM maturity compared to smaller organizations.

Similarly, operational excellence organizations seem to initiate their BPM projects predominantly to improve their processes rather than to enable other initiatives. These

organizations are therefore more likely to be at the forefront in establishing leading edge process capabilities. This leads to the following hypotheses:

H2: Organizations pursuing an operational excellence strategy are aspiring higher levels of BPM maturity compared to comparable organizations with another strategy.

H3: Organizations pursuing an operational excellence strategy are reaching higher levels of BPM maturity compared to comparable organizations with another strategy.

Additionally, several research questions are formulated from this research. The observations of BPM projects in small organizations point at the possible existence of "natural BPO" (McCormack, 2001) and a possible tipping point where "natural BPO" is not enough. The following research questions can be formulated:

RQ1a: Does "natural BPO" exist?

or in other words:

RQ2: Can a "turning point" be determined at which a growing organization requires more formal BPM in addition to "natural BPO"?

Another line of research would be to focus explicitly on the benefits of adopting BPM; answering the corresponding question:

RQ3: What actual benefits in organizations can be achieved with BPM?

Concluding, this research has shed some light onto the application of BPM in practice, but much more can and needs to be investigated.

7.4 Recommendations for practitioners

From the results of this research, several recommendations for practitioners are derived. Here, practitioners are defined as consultants. As the outcomes cannot indisputably be generalized until the preceding recommended hypotheses and these recommendations are tested, the recommendations have the status of design propositions rather than design rules (Romme, 2003).

The outcomes of this research revealed that larger organizations are more commonly starting projects in which the later phases of the BPM life cycle are in focus. Hence, these organizations are either more advanced in BPM, or at least more interested in conducting projects including those latter phases. This leads to the following recommendations:

To optimize the BPM client acquisition efforts, organization size needs to be considered for a successful sales activity. In case of larger organizations, selling the complete business life cycle should be aimed for. In smaller organizations, the focus should be on the more initial phases of the life cycle to supplement "natural BPO."

Given the influence of the strategy of the organization on the BPM projects, and the phenomenon to apply BPM as an enabler to other initiatives, the following recommendation can be formulated:

To catalyze BPM adoption in an organization which is not pursuing operational excellence as predominant strategic orientation, the process management efforts should be tied-in with an existing overarching initiative.

7.5 Summary

This research has given more insight into BPM and how organizational characteristics are influencing its adoption. It has shown how organizational size and its strategic orientation influence BPM projects conducted by consultants in those organizations. Moreover, it has revealed that the industry sector (profit motive and dominant activity, being manufacturing or non-manufacturing) is not correlating with the characteristics of BPM projects. From the recommendations for research, it is demonstrated that quite some light still needs to be shed on the "best practice management principle to help companies sustain competitive advantage" as BPM is characterized (Hung, 2006).

References

Armistead C, Machin S. "Implications of Business Process Management for operations management". *International Journal for Production & Operations Management* 1997;17; p. 868-898.

Armistead C, Machin S. "Business process management: implications for productivity in multi-stage service networks". *Business Process Management Journal* 1998;9; p. 323-336.

Ascari A, Rock M, Dutta S. "Reengineering and organisational change: lessons from a comparative analysis of company experiences". *European Management Journal* 1995;13; p. 1-30.

Bendoly E, Rosenzweig ED, Stratman JK. "Performance Metric Portfolios: A Framework and Empirical Analysis". *Production and Operations Management* 2007;16 (2); p. 257-276.

Beyer JM, Trice HM. "The Utilization Process: A Conceptual Framework and a Synthesis of Empirical Findings". *Administrative Science Quarterly* 1982;27 (4); p. 591-622.

Bielski L. "Link and go with BPM". *American Bankers Association, ABA Banking Journal* 2006;98; p. 43–45.

Campbell I. "Chi-squared and Fisher-Irwin tests of two-by-two tables with small sample recommendations". *Statistics in Medicine* 2007;26; p. 3661-3675.

Cochran WG. "The χ^2 test of goodness of fit". *Annals of Mathematical Statistics* 1952; 25; p.315–345.

DeToro I, McCabe T. "How to stay flexible and elude fads". *Quality Progress* 1997;30; p. 55-60.

Downing B, Spanyi A. "Toward Compliant Performance". *Strategic Finance* 2007;89; p. 26-31.

Earl M, Kahn, B. "How New is Business Process Redesign". *European Management Journal* 1994;12 (1), p. 20-30.

Ebrahim Z, Irani Z. "E-government adoption: architecture and barriers". *Business Process Management Journal* 2006;11; p. 589-611.

Edwards C, Peppard J. "Forging a link between business strategy and business re-engineering". *European Management Journal* 1994;12;4; p. 407-416.

Edwards C, Peppard J. "Operationalizing Strategy Through Process". *Long Range Planning* 1997;30;5; p. 753-767.

Elzinga DJ, Horak T, Lee CY, Bruner C. "Business Process Management: Survey and Methodology". *IEEE Transactions on Engineering Management* 1995;42; p. 119-128.

Fleiss JL, Levin B, Paik MC. "*Statistical Methods for Rates and Proportions*". 3rd edition; Wiley & Sons, Inc.; Hoboken, New Jersey; 2003.

Gartner. "*Delivering IT's Contribution: The 2005 CIO Agenda".* EXPPremier Report, 2005.

Gulledge TR, Sommer RA. "Business process management: Public sector implications". *Business Process Management Journal* 2002;8; p. 364-376.

Grizzle JE. "Continuity Correction in the Chi-square-Test for 2x2 Tables" *The American Statistician* 1967.

Hammer M. "Reengineering Work: Don't Automate, Obliterate." *Harvard Business Review*, 1999;July-August; p. 104-112.

Hammer M. "The process audit". *Harvard Business Review* 2007;April; p. 111 – 121.

Hammer M, Stanton S. "How process enterprises really work". *Harvard Business Review* 1999;November-December; p. 108-126.

Hung RYY. "Business Process Management as Competitive Advantage: a Review and Empirical Study". *Total Quality Management* 2006;17; p. 21-40.

Jeston J, Nelis J. *"Business Process Management: Practical Guidelines to Successful Implementations"*. 2nd edition; Elsevier Ltd.; Oxford; 2008.

Kaplan RS, Norton DP. "Having trouble with your strategy? Then map it". *Harvard Business Review* 2000;78 (5); p.167-176.

Kennedy Information. *"Global Consulting Marketplace 2008-2011; Key Trends, Profiles and Forecasts"* Kennedy Information; Petersborough, 2008.

Kiraka R, Manning K. "Managing Organisations Through a Process-Based Perspective: Its Challenges and Benefits". *Knowledge and Process Management* 2005;12; p. 288-298.

Landis JR, Koch GG. "The measurement of observer agreement for categorical data". *Biometrics* 1977;33 (1); p. 159-174.

Laukkanen S, Sarpola S, Hallikainen P. "Enterprise size matters: objectives and constraints of ERP adoption". *Journal of Enterprise Information Management* 2007;20;3; p. 319-334.

Lee J, Lee D, Kang S. "*An Overview of the Business Process Maturity Model (BPMM)*". APWeb/WAIM 2007, Springer-Verlag, Berlin Heidelberg; 2007.

Lee R, Dale B. "Business process management: a review and evaluation". *Business Process Management Journal* 1998;4; p. 214-225.

McCormack K. "Business Process Orientation: Do You Have It?". *Quality Progress* 2001;34; p. 51-58.

Mendling J. *"Metrics for process models: empirical foundations of verification, error prediction, and guidelines for correctness"*. Springer Verlag, Berlin; 2008.

Miles RE, Snow CC. "*Organizational Strategy, Structure, and Process"*. McGraw Hill, New York; 1978.

Miles RE, Snow CC. "*Organizational Strategy, Structure, and Process"*. Stanford University Press; 2003.

Mills PK, Margulies N. "Toward a Core Typology of Service Organizations." *The Academy of Management Review* 1980;5;2; p. 255-265.

Montgomery DC, Runger GC. *"Applied Statistics and Probability for Engineers, 3rd edition"*. John Wiley & Sons. Inc.; 2003.

Pande PS, Neuman RP, Cavanagh RR. "The Six Sigma Way, How GE, Motorola, and Other Top Companies Are Honing Their Performance." McGraw-Hill; 2000.

Perrow C. "A framework for the comparative analysis of organizations." *American Sociological*

Porter ME. "*Competitive Advantage".* The Free Press; New York; 1985.

Pritchard JP, Armistead C. "Business process management – lessons from European business". *Business Process Management Journal* 1999;5; p. 10-32.

Reijers HA. "Implementing BPM systems: the role of process orientation". *Business Process Management Journal* 2006;12; p. 389-409.

Review 1967;32; p. 196-208.

Romme AGL. "Making a Difference: Organization as Design". *Organization Science*; 2003;14 (5); p. 558-573.

Rosemann M, De Bruin T. "Towards a Business Process Management Maturity Model" *Proceedings of the 13th European Conference on Information Systems Conference*; 2007.

Rosemann M, De Bruin T. "Application of a Holistic Model for Determining BPM Maturity". *Proceedings of the AIM Pre-ICIS Workshop on Process Management and Information Systems* 2004; p. 46-60.

Sim J, Wright CC. "The kappa statistic in reliability studies: use, interpretation, and sample size requirements". *Physical Therapy* 2005; 83 (3); p. 257-268.

Stemerding A, Van Dijk A. "*Business Process Modelling; basic guidelines and tips"*. Deloitte Consulting Amstelveen; 2005.

Strauss AL, Corbin JM. "*Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory"*. Sage Publications ltd; London; 1990.

Tallon PP. "Does IT pay to focus? An analysis of IT business value under single and multi-focused business strategies" *Journal of Strategic Information Systems* 2007;16; p. 278-300.

Thompson JD." *Organizations in action*." McGraw- Hill; New York; 1967.

Treacy M, Wiersema F. *"The Discipline of Market Leaders"*. Addison-Wesley Publishing Company; 1995.

Van Aken JE. "Management Research Based on the Paradigm of the Design Sciences; The Quest for Field-Tested and Grounded Technological Rules". *Journal of Management Studies* 2004;41; p. 219-246.

Van der Aalst WMP, Van Hee KM. "*Workflow Management; Models, Methods and Systems"*. MIT Press; 2002.

Van der Aalst WMP. "Business Process Management: A Personal View" *Business Process Management Journal* 2004; 10 (2); p. 135-139.

Van Wijk AW. "Business Process Management; a literature review on its adoption and maturity". Literature review 1ML05; Technische Universiteit Eindhoven; 2008.

Vergidis K, Turner C, Tiwari A. "Business process perspectives: Theoretical developments vs. real-world practice". *International Journal of Production Economics* 2008;114: p. 91-104.

Verschuren P, Doorewaard H. "*Het ontwerpen van een onderzoek*". 4e druk, Uitgeverij Lemma; 2007.

Westphal JD, Gulati R, Shortell SM. "Customization or Conformity? An Institutional and Network Perspective on the Content and Consequences of TQM Adoption" *Administrative Science* 1997;42 (2); p. 366-394.

Willaert P, Van den Bergh J, Willems J. "The Process-Oriented Organisation: A Holistic View – Developing a Framework for Business Process Orientation Maturity". *Lecture Notes in Computer Science* 2007; p. 1-15.

Woodward J. "*Industrial organization: Theory and practice.*" Oxford University Press; London; 1965.

Yates F. "Contingency Tables Involving Small Numbers and the χ^2 Test" *Supplement to the Journal of the Royal Statistical Society* 1934; 1 (2); p. 217-235.

Zairi M. "Business process management: a boundaryless approach to modern competitiveness". *Business Process Management Journal* 1997;3; p. 64-80.

Zur Mühlen M. "*Workflow-based Process Controlling. Foundation, Design, and Implementation of Workflow-driven Process Information Systems. Advances in Information Systems and Management Science".* Logos, Berlin; 2004.

Appendix A: List of abbreviations

BPM	Business Process Management
BPMM	Business Process Maturity Model
BPMS	Business Process Management System
BPO	Business Process Orientation
BPR	Business Process Reengineering
CDD	Customer Due Diligence
CMMI	Capability Maturity Model Integration
CRM	Customer Relationship Management
DMS	Document Management System
ERP	Enterprise Resource Planning
FEC	Financial Economic Crime
IMCO	Inputs Measurements Controls Outputs
IT	Information Technology
KPI	Key Performance Indicator
LSS	Lean Six Sigma
PI	Performance Indicator
SBU	Strategic Business Unit
SOA	Service Oriented Architecture
TQM	Total Quality Management
TU/e	Eindhoven University of Technology
WFM	Workflow Management
WFMS	Workflow Management System

Appendix B: Case study descriptions

This appendix contains short descriptions of the cases used in the case studies aimed at the development of the coding framework. An analysis of these cases is presented in Chapter 4.

B.1 Case A: Municipal authority

Organizational characteristics	
Industry	Public sector, government
Size	± 8000
Profit motive	Non-profit
Manufacturing / non manufacturing	Non-manufacturing
Predominant strategic orientation	Customer intimacy

Table B-1: Organizational characteristics: Municipal authority

One of the larger municipal authorities in the Netherlands finds itself confronted with new national regulations for the handling of permits for – among others – the building and demolition of buildings (WABO: Wet algemene Bepalingen Omgevingsrecht). In total, about twenty five permits concerning the physical environment are included in this new law. These regulations enforce all municipal authorities to process a regular permit request in a much shorter time as used to be the case, being eight weeks. Moreover, the new regulations also require the establishment of one counter the permit applicant can turn to in order to apply for a permit, both physically and digitally.

The municipal authority faces serious issues complying with this regulation, as several local authorities ("deelgemeenten") and other authorities like conservancies are – occasionally – involved in the permit process. In total, over twenty government agencies can be involved in the permit process. Deloitte was asked to assist the municipal authority in meeting the new demands. The complete chain of involved agencies has been linked through the implementation of a mid office. A to-be process model has been created and the implementation of the newly designed business processes was assisted. This implementation included IT in the shape of a Workflow Management System (WFMS) and information architecture.

B.2 Case B: Market supervision institute

Organizational characteristics	
Industry	Public sector, government
Size	± 367
Profit motive	Non-profit
Manufacturing / non manufacturing	Non-manufacturing
Predominant strategic orientation	Operational excellence

Table B-2: Organizational characteristics: Market supervision institute

A relatively young supervisor of the energy market employing approximately seventy people devotes itself to the efficiency of the energy market. In order to strengthen the mission to do so while providing quality and to meet higher stakeholder demands, it was decided to secure the

primary processes. Process models did exist in the organization, but were not used in practice. A pilot project showed large improvement possibilities after the description, modeling and improvement of a selected set of primary processes. As a result, Deloitte was asked to create process descriptions for all processes and identify improvement options. Included in the models were so-called swim lanes which places a division of processes under the responsibilities of different parts of the organization. The occurrence of swim lanes in this case resembles the assignment of groups of human resources to sets of tasks. Note that end-to-end process ownership is not established by applying swim lanes, as swim lanes depict how the responsibility of the business process is divided over different organizational units instead of establishing overall ownership. Initially, all business processes were identified, prioritized and quality criteria (KPI's) were established, after which several processes were improved. This improvement was aimed to be a continuous effort after the end of the project. A future ISO 9001 certification was planned.

B.3 Case C: Financial service provider #1

Organizational characteristics	
Industry	Financial service industry
Size	± 54700 in total
Profit motive	Profit
Manufacturing / non manufacturing	Non-manufacturing
Predominant strategic orientation	Customer intimacy

Table B-3: Organizational characteristics: Financial service provider #1

A large financial service provider has mortgages as one of its primary products. However, the lead management process in which a potential mortgagee is contacted for an appointment was performing unsatisfactory. It exceeded throughput time objectives and resulted in too many failures. The process under focus is shared between the head office and the separate branch offices and several interfaces to transfer leads between the actors in the process existed. The transparency of the process is limited, i.e. the status of a lead cannot be viewed after transfer. Adding to this complexity, the origin of leads varies and the transparency of the process is very limited. Deloitte was asked to improve the lead management process to enable the organization to guarantee a reply on a meeting request within 24 hours. Changing customer expectations seem to demand such short response times. The configuration of the Customer Relationship Management (CRM) system played an important role.

The original process was analyzed and bottlenecks identified. Short and long term process improvements were created, both with and without the implementation of a new system. This was followed by the design of an improved to-be process which focused explicitly on the division of roles between the central head office and the local branch offices. The ownership of leads was part of the process descriptions. The same holds for KPI's. Finally, the new process was tested in a number of branch offices and a organization wide implementation for the new process was supported.

B.4 Case D: Private equity firm

Organizational characteristics	
Industry	Financial service industry
Size	± 40
Profit motive	Profit
Manufacturing / non manufacturing	Non-manufacturing
Predominant strategic orientation	Customer intimacy

Table B-4: Organizational characteristics: Private equity firm

Based on comparable organizations' actions, a small private equity firm opted for an ERP vendor. When the implementation of an ERP system is lingering for over two years, the organization calls for assistance. Deloitte was asked to help implementing the system. During an analysis of the initial situation, it occurred that the implementation until then was primarily ICT focused, hence lacking a business, and an organization focus. An overview of the business processes affected by the ERP implementation was lacking completely. In response to that, several important parts of the ERP implementation were initiated, including the establishment of a process management office and a business-oriented program approach in which the business processes play the central part. The first was aimed at the development of tools and templates for the management of process descriptions and the enhancement of process awareness among employees, while the latter focused on the translation of organizational goals through a process vision and process model for the basic processes into a blueprint for the ERP system. Most of the processes were modeled based on generic models, tailor-made processes were – for time and financial reasons – only created when a business case for such a custom-made process existed. Process ownership was explicitly included into the process models and linked to a process management office.

B.5 Case E: Energy solutions provider

Organizational characteristics	
Industry	Energy & utilities
Size	± 1050 in the Netherlands
Profit motive	Profit
Manufacturing / non manufacturing	Manufacturing
Predominant strategic orientation	Operational excellence

Table B-5: Organizational characteristics: Energy solutions provider

As a result of a benchmark study among a number of power plants in- and outside the Netherlands; the Dutch branch of a provider of energy solutions finds itself lagging behind its foreign peers. The benchmark focused on a combination of factors relating to process, costs and environmental effects. As a consequence, the Dutch branch of the organization decides to start improving the processes of their five power plants to become best in class and low cost and to improve all three factors assessed in the benchmark. As a second objective, the organization aims to develop the competence and cultural management to support a process-and market oriented culture. The latter seems resemble the establishment of BPO closely. The entire project focuses initially on the Generation Division (operations and maintenance), Sales, Human Resources and

Finance. Primarily, Deloitte was asked to assist in the improvement of the process related to the generation division. For the other parts of the organization, the actual work was conducted by internal employees, managed by a Deloitte project team.

In order to improve the performance of the generation division several steps were taken. A reengineering exercise of the business processes and the organization was conducted based on uncovered best practices revealed by a benchmark between the five Dutch power plants. Business processes in scope include purchasing and warehousing of parts, maintenance of the plants and some financial processes. The benchmark also resulted in a harmonization of the business process over the diverse plants. Moreover, a detailed process design was established top-down up to the level of work instructions. The process model included swim lanes and was monitored by process performance indicators. In addition to this, the links between the processes and the IT architecture were described. As an important part of the implementation, the process awareness of employees was enhanced through workshops.

B.6 Case F: Leading entertainment producer

Organizational characteristics	
Industry	Technology, media & telecommunications
Size	> 100 in the European SBU
Profit motive	Profit
Manufacturing / non manufacturing	Manufacturing
Predominant strategic orientation	Product leadership

Table B-6: Organizational characteristics: Entertainment producer

As a strategic decision, a computer games producer aims to optimize its European supply chain operations in response to expected growth. This optimization includes a shift from a primarily licensee model to a primarily vertically integrated model. Another branch of the same holding organization already assessed and improved their supply chain processes to accommodate a vertical integration movement. Consequently, Deloitte was asked to perform a fit-gap analysis. As the time frame was limited, the focus was on four primary supply chain processes; order to cash, forecast to manufacture, procurement to pay and record to report. This analysis compared the supply chain processes of both branches. Based on the comparison of processes, the re-usability of the existing processes of the other branch for the games branch was assessed.

Based on the identified gaps, specific processes were developed for the gaps. The corresponding process models include KPI's. Combined with the useful parts of the existing process, a new and vertically integrated process was implemented. This training included the training of the employees playing a role in the process. The implementation and monitoring of the KPI's was outside the scope of the project.

B.7 Case G: Financial service provider #2

Organizational characteristics	
Industry	Financial service industry
Size	± 30000 in total, SBU: ± 6500 (estimate)
Profit motive	Profit
Manufacturing / non manufacturing	Non-manufacturing
Predominant strategic orientation	Operational excellence

Table B-7: Organizational characteristics: Financial service provider #2

A large Dutch retail and business bank obtains a critical review of its policies preventing Financial Economic Crime (FEC) from the Dutch national bank. FEC includes practices like money laundry, fraud and funding terrorism. Every bank needs to comply with legislation aimed at the prevention of such activities. Prevention includes screening clients, a so-called Customer Due Diligence (CDD). As compliance is crucial to the continuation of the day-to-day banking activities, Deloitte was asked to help improving the FEC/CDD processes of the bank.

In order to do so, several actions were taken. First, all existing clients of the bank were screened based on a risk analysis. More importantly in this particular case; business processes were modeled and adapted to include the prevention of FEC in regular business. A special unit was established to take care of the FEC prevention processes. Mapping of the detailed FEC/CDD processes on an implementation level, drawing-up of work instructions and training-material were part of the preparations for this unit. Even though links between the administrative and primary processes obviously exist, the focus of the project was on the administrative processes.

B.8 Case H: Soft drink producer

Organizational characteristics	
Industry	Consumer business
Size	± 6000 in total
Profit motive	Profit
Manufacturing / non manufacturing	Manufacturing
Predominant strategic orientation	Operational excellence

Table B-8: Organizational characteristics: Soft drink producer

The bottler organization of a well-known soft drink producer, composed of a number of franchise bottlers (i.e. bottling plants) both in- and outside the Netherlands, has made the decision to implement a unified ERP system. Although the same system already had been chosen for every bottler, each of them was implementing the system separately. This resulted in high risks for reinventing the wheel practices while implementing improved business processes into the ERP system. For the majority of bottlers (12), a harmonization and documentation project, targeting both processes and data, was initiated in order to leverage the individual efforts of the bottlers.

In total, over 450 processes were modeled in detail. In scope were a wide variety of business processes, ranging from sales & distribution, pricing management and procurement management to recruitment and financial accounting. In fact, all value creating back office, front office and supply chain processes of the bottlers are part of the project. The resulting models were discussed

with the bottlers during workshops in order to obtain the required buy-in for the future implementation. Working procedures were included in the models, resulting in a high level of detail. The resulting harmonized process and data models were made available to all bottlers for implementation, this implementation was partially in scope of the project.

B.9 Case I: Insurance company

Organizational characteristics	
Industry	Financial service industry
Size	± 261
Profit motive	Profit
Manufacturing / non manufacturing	Non-manufacturing
Predominant strategic orientation	Customer intimacy

Table B-9: Organizational characteristics: Insurance company

An insurance company decided to offer a new type of mortgage combined with a life insurance policy in cooperation with four partner organizations. This joint effort in which an innovative product will mainly be offered through the internet, affects among others IT, organization and processes.

Having a clear process model of the new processes was of evident importance to the insurance company in order to establish concrete standards for the handovers of work between the independent partner organizations. Also the necessary IT infrastructure and organizational adaptations to facilitate the newly designed processes were developed. As the focus of the project was a completely new product and corresponding process, all activities of the BPM cycle were conducted to identify, describe and finally implement the new processes. Deloitte also assisted in training the employees to work within the new processes, finalizing the implementation.

Appendix C: Preliminary coding framework

During a workshop on the 12th of February 2009, with fifteen Deloitte professionals of the Architecture and BPM service line attending, a preliminary coding framework has been presented to trigger feedback. This preliminary framework is depicted in Figure C-1.

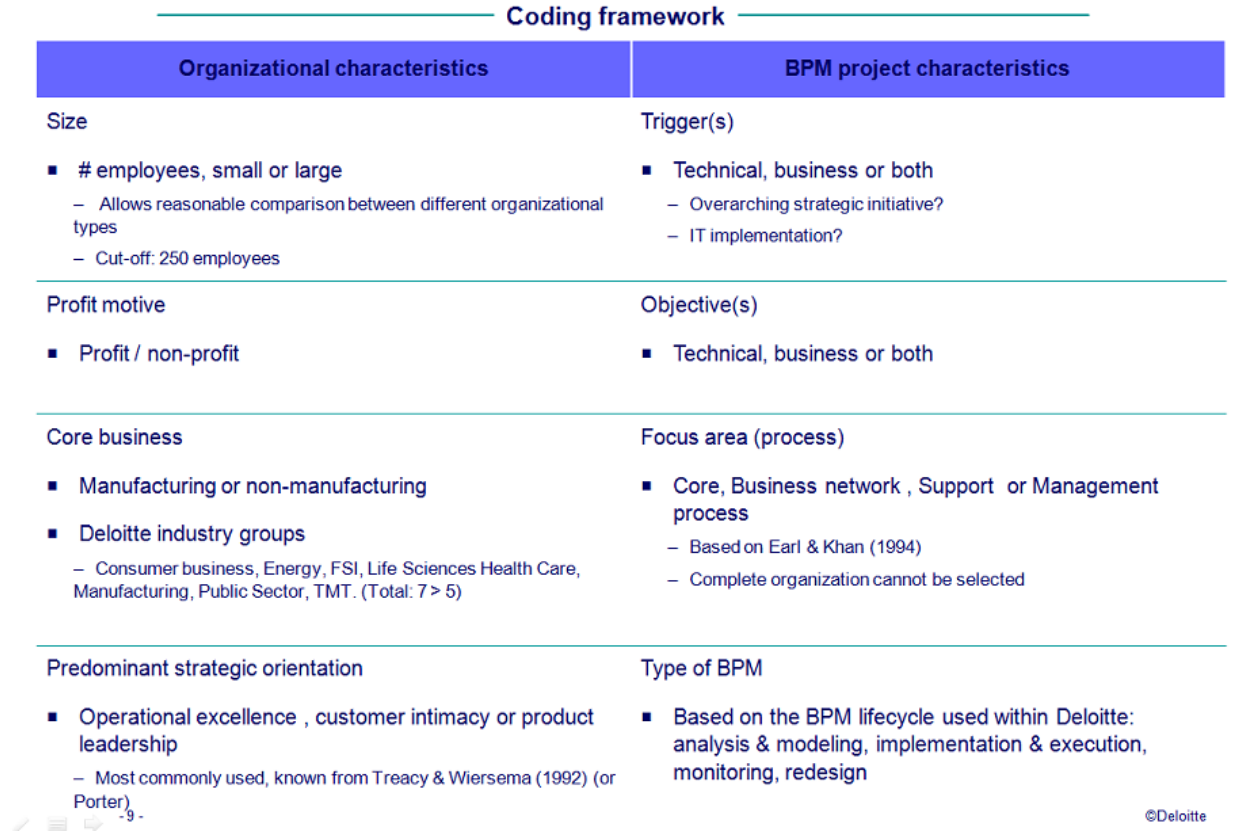

Figure C-1: The slide depicting the coding framework as presented at the 12th of February, 2009

- Feedback during the workshop ensured that the proposed set of codes was to a large extent sufficient. The trigger codes were an exception, as the code "business" was considered to be too broad. Initiatives ranging from a need to resolve inconsistencies in CRM due to a merger or the registration of processes for compliance reasons would all fall into this category. Therefore, it was suggested to split the code business into two parts. For instance "business value improvement" focusing on an internally developed need to improve the competitive position of the organization and "business preservation" covering triggers like new regulations enforcing an organization to work on compliance to these regulations.
- Overarching strategic initiatives as mentioned by Hammer & Stanton (1999) are possible triggers as well, those do not explicitly fit into this model, therefore an additional code could be added, explicitly aimed at the overarching strategic initiative.
- The typology by Earl & Khan (1994) was presented during the workshop. As one participant pointed out; many projects will most likely have a focus on the primary processes. As this category includes sales processes, product development processes and the actual production processes differences correlating with the strategic orientation of the client organization are likely to be hidden as all those projects would get pooled under one code.

Appendix D: Semi-structured interview questions

Questionnaire (validation codes)

Adoption of Business Process Management; do organizational characteristics affect it?

Participant name:

Client organization:

Project:

Earlier, you have been contacted about the project above as part of a research project. During the last couple of weeks, the project is included in a quantitative dataset based on a number of characteristics. To enhance the reliability of this dataset, I would like to ask you to fill out the following ten (closed) questions. Please do so before April 3rd. Your answers are vital to this research and my master thesis.

Thank you in advance!

Best regards,

Sander van Wijk

Organizational characteristics

Several characteristics of the client organization in which the project was conducted, and the characteristics of the project itself will be discussed. The organizational characteristics refer to the entity of the organization in which the project was conducted and its underlying organizational units. Consequently, if the client organization is a Strategic Business Unit (SBU), the characteristics of this SBU are asked. Similarly for projects conducted at corporate level. For example ABN Amro is the main organization, but if the project was conducted within Business Unit (BU) NL only, then answer these questions for BU NL only.

Size

The number of employees, which is used as measure for size, refers to the number of employees *employed* by the organization, rather than the number of employees involved in the project.

Please select one option:

- Small: number of employees < 250
- Medium: 250 =< number of employees < 1000
- Large: 1000 =< number of employees < 10000
- Very large: number of employees >= 10000

Profit / non-profit

Please indicate whether the client organization is a profit or non-profit organization:

- Profit
- Non-profit

Manufacturing / non-manufacturing

Please indicate whether the client organization is a manufacturing or a non-manufacturing (service) organization. Organizations in the Energy and Utilities industry are classified as manufacturing. For organizations having both a manufacturing and a service activity, select the option which is dominant in terms of value delivery.

- ○ Manufacturing
- ○ Service

Organizational strategy

Please select which one of the three strategic orientations matches the client organization best.

- ○ Operational excellence — deliver a product or service at best total cost
- ○ Customer intimacy — deliver the best total solution
- ○ Product leadership — deliver the best product, i.e. product or service

BPM project characteristics

Refocusing attention to the project itself, several codes need to be applied to the characteristics of this project. During this part of the questionnaire/interview it is important to focus on the actual project, rather than the proposed project.

Triggers

Please indicate whether the project is initiated as a part of a (larger) overarching initiative or as an independent project. Examples of an overarching (strategic) initiative are post merger integrations, ERP implementations, new product launches, major restructurings, etcetera.

- ○ Part of an overarching (strategic) initiative
- ○ Independent project

When an overarching (strategic) initiative functioned as the trigger; could you elaborate on the kind of overarching initiative it is?

Objectives

The project evidently had certain objectives, these are split in business- and technical objectives. Firstly, please indicate which business objective matches the project best:

- ○ Business performance

  Improve competitive position or broadly: performance.

- ○ Business conformance

  Conform to external pressures i.e. rules & regulations **without** performance improvement.

Technical objectives refer to the objective of the project, rather than to a solution used in the project.

An example of a project which has a technical objective would be a project aimed at a process harmonization to ease an ERP implementation. On the other hand, a Business Process Redesign project in which an existing ERP system had to be adapted to the new processes is a good example of a project without a technical objective in this respect.

Please indicate whether the project had a technical objective:

○ Yes

Implementation of IT is a goal of the project or of its overarching initiative.

○ No

No IT involvement or IT solely as solution in the project rather than the goal of the project.

Focus area (process)

The background of the project is by now discussed and the objectives are determined, the next questions focus on the scope of the project.

Which processes were in focus of the project, please select one of the options below.

○ Core processes the value creating processes

○ Support processes the processes supporting core

○ Both both core and support processes

Type of BPM

The final characteristic refers to the type of BPM used in the project and is based upon the BPM life cycle presented below (Figure D-1)

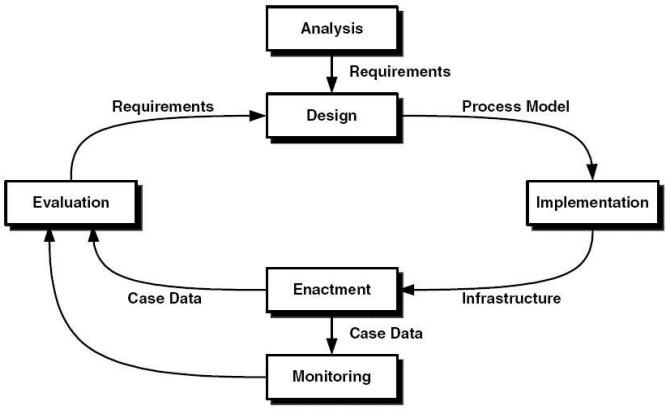

Figure D-1: Business process management life cycle (Mendling, 2008)

Note that the phases are defined from a – client – organizations' point of view, and do *not* exactly map the BPM life cycle model used within Deloitte. Moreover, as a consulting project is – in some cases – only a part of an organizations' BPM efforts, any phase could form the starting point of a consulting project.

Please read the corresponding text carefully before indicating which phases were in scope of the project i.e. in which phases of BPM the client organization was assisted during the project. **More than one option can be selected** for this final question.

☐ Analysis

The analysis covers both the environment of the process and the organization structure. The output of this step is a set of requirements for the business process such as performance goals or intentions.

☐ Design

The output of the design phase is typically formalized as a business process model (as-is and/or to-be).

☐ Implementation

The infrastructure for the business process is set up. Training of staff, provision of a dedicated work infrastructure or the technical implementation and configuration of software.

☐ Enactment

The actual enactment of the process includes the handling of individual cases and produces information which could serve as input to monitoring and evaluation.

☐ Monitoring

Depending on process metrics, for instance maximum waiting time for a certain process activity. Monitoring triggers respective counteractions if such a metric indicates a problematic situation.

☐ Evaluation

Evaluation of case data measured through process performance indicators on an aggregated level leads to new requirements that are taken as input in the next turn of the business process management life cycle.

If you wish to be informed about the results of the research, please tick the box below:

☐ *Yes, I would like to be informed about the results of the research*

Thank you very much for your time and effort!

Appendix E: Case information

Table E-1 below depicts short descriptions of all thirty-three organizations and their assigned codes. Table E-2 depicts the same for the BPM projects.

Label	Organization	Organization size		Profit motive		(Non-)manufacturing		Strategic Orientation	
		Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.
A: GMB	A large municipal authority	Very large	Very large	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	CI	CI
B: GMB	An SBU of a market supervision institute	Small	Small	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	OE	OE
C: FSI	A large, international bank	Very large	Very large	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	CI
D: FSI	A private equity firm	Small	Small	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	CI
E: E&U	An energy solutions provider	Large	Large	Profit	Profit	Manufacturing	Manufacturing	OE	OE
F: TMT	The European SBU of a home entertainment producer	Small	Small	Profit	Profit	Non-manufacturing	Manufacturing	PL	PL
G: FSI	A Dutch SBU of a large, business bank	Very large	Large	Profit	Profit	Non-manufacturing	Non-manufacturing	OE	OE
H: CB	One of the largest soft drink producers in the world	Large	Large	Profit	Profit	Manufacturing	Manufacturing	OE	OE
I: FSI	An insurance company	Medium	Medium	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	CI
J: ATS	A governmental harbor authority	Small	Small	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	OE	OE
K: CB	A large, worldwide spirits manufacturer	Large	Large	Profit	Profit	Manufacturing	Manufacturing	OE	PL
L: E&U	A sustainable energy solutions manufacturer	Small	Medium	Profit	Profit	Manufacturing	Manufacturing	PL	PL
M: E&U	A regional waterworks organization	Medium	Medium	Profit	Profit	Manufacturing	Manufacturing	OE	PL
N: FSI	The pensions SBU of a large, Dutch insurance company	Very large	Medium	Profit	Profit	Non-manufacturing	Non-manufacturing	OE	OE
O: FSI	The mortgage bank of a large Dutch insurance group	Medium	Small	Profit	Profit	Non-manufacturing	Non-manufacturing	OE	CI
P: FSI	The private banking SBU of a large, multinational bank	Medium	Medium	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	CI
Q: FSI	The private banking SBU of a large, multinational bank	Medium	Medium	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	CI
R: FSI	A Dutch SBU of a large, international bank	Large	Large	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	OE
S: FSI	A SBU of a large, international bank	Large	Very large	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	PL
T: FSI	A Dutch SBU of a large, international bank	Large	Medium	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	OE
U: FSI	A global provider of leasing and finance solutions	Large	Small	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	PL
V: FSI	The real estate SBU of a large bank	Medium	Small	Profit	Profit	Non-manufacturing	Non-manufacturing	CI	OE
W: GMB	A ministry department (SBU)	Small	Small	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	OE	CI
X: GMB	A municipal authority	Large	Large	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	CI	CI
Y: GMB	A municipal authority	Large	Medium	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	CI	CI
Z: GMB	A municipal authority	Large	Medium	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	CI	CI
ZA: GMB	A ministry department (SBU)	Large	Very large	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	OE	OE
ZB: GMB	A ministry department (SBU)	Medium	Medium	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	OE	CI
ZC: HC	A mental health care institution	Medium	Medium	Non-profit	Non-profit	Non-manufacturing	Non-manufacturing	CI	CI
ZD: MNF	A large manufacturer of paints, coatings and chemicals	Very large	Very large	Profit	Profit	Manufacturing	Manufacturing	OE	OE
ZE: MNF	A specialty manufacturer of optical glass	Very large	Large	Profit	Profit	Manufacturing	Manufacturing	PL	PL
ZF: MNF	A leading provider of document management and printing	Very large	Very large	Profit	Profit	Manufacturing	Manufacturing	CI	CI
ZG: TMT	A telecom, internet and tv services provider	Very large	Very large	Profit	Profit	Non-manufacturing	Non-manufacturing	OE	PL

Table E-1: Organization descriptions and assigned codes (Doc. indicates the codes based on documentation, Interv. codes are based on the interviews)

Label	Project	Trigger		Business objective		Technical objective		Focus area		Analysis		Design		Implementation		Enactment		Monitoring		Evaluation	
		Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.
A: GMB	To become compliant to new regulations, the processes concerning permits - for among others building and demolition - are redesigned and implemented including supporting IT	Overarch. initiative	Overarch. initiative	Conformance	Conformance	Yes	Yes	Core	Core	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No
B: GMB	Quality management including the identification, description and implementation of processes	Independent	Independent	Performance	Performance	No	No	Core	Both	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
C: FSI	An optimization and implementation of mortgage sales processes based on Lean Six Sigma methodology	Independent	Independent	Performance	Performance	No	No	Core	Core	No	No	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
D: FSI	The identification, modeling and improvement of most basic processes to facilitate a lagging ERP system (Manhattan) implementation	Overarch. initiative	Overarch. initiative	Performance	Performance	Yes	Yes	Both	Both	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
E: E&U	An Enterprise Lean Six Sigma project to improve processes in order to become more cost effective and best in class. Additionally, a process centered culture was promoted through workshops	Independent	Independent	Performance	Performance	No	No	Both	Both	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
F: TMT	Proces fit-gap-analysis to move from a local to a more central distribution model (like with another SBU) and achieve vertical integration of production activities	Overarch. initiative	Overarch. initiative	Performance	Performance	No	Yes	Core	Core	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
G: FSI	A Business Process Redesign to facilitate the compliance with new regulations (FEC/CDD). The project included a full implementation and processing of a due diligence of all existing clients	Independent	Independent	Conformance	Conformance	No	Yes	Support	Support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H: CB	Analysis, harmonization and modeling of over 300 processes to uniformize SAP implementation and facilitate best practice transfer	Overarch. initiative	Independent	Performance	Performance	Yes	Yes	Core	Core	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No
I: FSI	Development and implementation of new processes, organizational structure and some supporting IT to enable the introduction of new product in the market	Overarch. initiative	Independent	Performance	Performance	Yes	No	Core	Both	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
J: ATS	The creation of a process model of all major core and support processes to identify improvement options and to facilitate training of new staff	Independent	Independent	Performance	Performance	No	No	Core	Both	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
K: CB	Global SAP implementation supporting both core and support processes	Overarch. initiative	Overarch. initiative	Performance	Performance	Yes	Yes	Core	Both	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
L: E&U	Analysis of the existing processes and a qualitative evaluation of the performance of those processes to identify processes in need for improvement	Independent	Independent	Performance	Performance	No	No	Core	Both	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes
M: E&U	The analysis and improvement of processes for the future implementation of an ERP system	Overarch. initiative	Overarch. initiative	Performance	Performance	Yes	Yes	Both	Both	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
N: FSI	An analysis and optimization of insurance claims and credit management processes running through different organizational departments	Independent	Independent	Performance	Performance	No	No	Core	Both	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
O: FSI	Process descriptions and identification of current risks, controls and process improvement options	Independent	Overarch. initiative	Conformance	Conformance	No	No	Core	Both	No	No	Yes	Yes	No	No	No	No	No	No	No	No
P: FSI	The creation of a process model including improvements to facilitate the implementation of a new WFMS (Cordys) as part of a larger uniformation effort among different countries	Overarch. initiative	Overarch. initiative	Performance	Performance	Yes	Yes	Core	Core	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No
Q: FSI	As part of a larger operational excellence effort, a process optimization of the intake processes of new clients and implementation of a WFMS (Staffware) was carried out.	Independent	Overarch. initiative	Performance	Performance	Yes	Yes	Core	Both	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No
R: FSI	A Lean Six Sigma project focused on the improvement of lending processes, including a pilot test in some branches and a nation-wide roll out.	Overarch. initiative	Overarch. initiative	Performance	Performance	No	No	Core	Core	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S: FSI	A Lean Six Sigma project focused on the improvement of a core process (opening international accounts), including a pilot test and implementation of a management dashboard	Independent	Overarch. initiative	Performance	Performance	Yes	Yes	Core	Core	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
T: FSI	An assessment of the as-is situation of the compliance with rules and regulations regarding FEC/CDD, including process descriptions and identification of improvement options	Independent	Independent	Conformance	Conformance	No	No	Support	Support	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No
U: FSI	Optimization of sales force effectiveness, development of a global process blueprint and implementation of a CRM system (Siebel)	Independent	Independent	Performance	Performance	Yes	Yes	Core	Both	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No
V: FSI	The analysis, design and improvement of most business processes as part of an IT implementation (Financial registration and WFMS)	Overarch. initiative	Independent	Performance	Performance	Yes	Yes	Both	Both	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
W: GMB	Description of workflows and identification of improvement options	Independent	Independent	Conformance	Conformance	No	No	Core	Core	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
X: GMB	A Business Process Redesign of several processes centered around the implementation of e-government services (offered through the internet to citizens)	Overarch. initiative	Overarch. initiative	Performance	Performance	Yes	Yes	Core	Core	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes

Label	Project	Trigger		Business objective		Technical objective		Focus area		Analysis		Design		Implementation		Enactment		Monitoring		Evaluation	
		Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.	Doc.	Interv.
Y: GMB	The modeling and documentation of the processes of a newly established customer contact centre	Overarch. initiative	Overarch. initiative	Performance	Performance	No	No	Core	Core	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Z: GMB	A process modeling project aimed at establishing a clear set of activities for a newly established organizational unit	Overarch. initiative	Overarch. initiative	Performance	Performance	No	No	Core	Core	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
ZA: GMB	A business process improvement and implementation as part of a transition from a cost centre structure to profit-and-loss accounting	Overarch. initiative	Overarch. initiative	Conformance	Conformance	Yes	No	Both	Both	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
ZB: GMB	Creation of a completely newly designed process and supporting IT architecture to carry out a different funding calculation system	Overarch. initiative	Independent	Conformance	Conformance	Yes	No	Core	Core	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
ZC: HC	Redesign and implementation of processes after the introduction of a new finance system	Overarch. initiative	Overarch. initiative	Conformance	Performance	Yes	Yes	Core	Core	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
ZD: MNF	A complete redesign of the Intellectual Property department's processes including supporting implementation of document management and workflow	Independent	Independent	Performance	Performance	Yes	No	Support	Both	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
ZE: MNF	As part of a global SAP Implementation, several financial processes descriptions were developed, implementation was planned but refrained from due to budget reasons	Overarch. initiative	Overarch. initiative	Conformance	Conformance	Yes	Yes	Support	Support	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
ZF: MNF	Global business transformation: a global harmonization of business processes to reduce costs for operations, improve tracking & tracing of customer orders and improve the sales processes	Overarch. initiative	Overarch. initiative	Performance	Performance	Yes	No	Core	Core	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No
ZG: TMT	The implementation a CRM system (ePiphany) for campagn management and interaction advisory, enabled by process descriptions and improvements	Overarch. initiative	Overarch. initiative	Performance	Performance	Yes	Yes	Core	Core	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No

Table E-2: BPM project descriptions and assigned codes (Doc. indicates the codes based on documentation, Interv. codes are based on the interviews)

Appendix F: Results statistical analysis

The full tables of results of both the χ^2tests and the Fisher's exact tests are included below.

	Organization size	Profit motive	Manufacturing	Predominant strategic orientation	Trigger	Business objective	Technical objective	Focus area
Organization size		0,839	0,232	0,605	0,680	1,000	0,569	0,200
Profit motive	0,839		**0,023 ***	**0,051 ****	0,722	0,205	0,259	0,193
Manufacturing	0,293	**0,032 ***		**0,012 ***	1,000	0,394	0,708	0,855
Pred. strategic orientation	0,585	**0,045 ***	**0,015 ***		**0,016 ***	0,768	**0,035 ***	**0,078 ****
Trigger	0,680	0,722	1,000	**0,017 ***		1,000	**0,037 ***	0,229
Business objective	1,000	0,164	0,394	0,768	1,000		0,688	**0,011 ***
Technical objective	0,569	0,161	0,708	**0,038 ***	**0,037 ***	0,688		0,616
Focus area	0,299	0,138	0,855	**0,053 ****	0,157	0,016	0,681	
Type of BPM: Analysis	**0,029 ***	0,289	1,000	0,328	0,607	1,000	0,601	0,731
Type of BPM: Design	0,330	1,000	0,477	0,324	0,199	0,432	0,485	0,176
Type of BPM: Implementation	**0,050 ***	0,461	0,425	0,346	1,000	0,681	0,157	0,397
Type of BPM: Enactment	0,446	0,640	1,000	0,729	1,000	1,000	1,000	0,813
Type of BPM: Monitoring	**0,062 ****	0,646	0,642	0,417	0,283	1,000	0,688	0,564
Type of BPM: Evaluation	**0,025 ***	0,397	1,000	0,653	0,674	0,652	1,000	0,564
Type of BPM: No. of phases	0,596	0,705	0,321	0,619	0,950	0,128	**0,031 ***	0,135

χ^2 (exact, 2 tailed)

Fisher (exact, 2 tailed)

Table F-1: Results statistical analysis (1), * = significant at α = 0,05; ** = significant at α = 0,10.

	Type of BPM: Analysis	Type of BPM: Design	Type of BPM: Implementation	Type of BPM: Enactment	Type of BPM: Monitoring	Type of BPM: Evaluation	Type of BPM: No. of phases
Organization size	**0,037 ***	0,237	**0,060 ****	0,496	**0,077 ****	**0,022 ***	0,443
Profit motive	0,289	0,564	0,461	0,640	0,646	0,397	0,645
Manufacturing	1,000	1,000	0,425	0,655	0,642	1,000	0,312
Pred. strategic orientation	0,328	0,496	0,346	0,729	0,365	0,756	0,495
Trigger	0,607	0,199	1,000	1,000	0,413	0,674	0,950
Business objective	1,000	0,432	0,681	1,000	1,000	0,652	0,128
Technical objective	0,601	0,485	0,157	1,000	0,688	1,000	**0,035 ***
Focus area	0,731	0,176	0,509	1,000	0,855	0,855	**0,086 ****
Type of BPM: Analysis	x	1,000	0,638	1,000	1,000	0,190	
Type of BPM: Design	1,000	x	0,148	1,000	1,000	0,384	
Type of BPM: Implementation	1,000	0,148	x	**0,060 ****	**0,027 ***	0,202	
Type of BPM: Enactment	1,000	1,000	**0,060 ****	x	**0,000 ***	**0,093 ****	
Type of BPM: Monitoring	1,000	1,000	**0,027 ***	**0,000 ***	x	**0,023 ***	
Type of BPM: Evaluation	0,190	0,384	0,202	**0,093 ****	**0,023 ***	x	
Type of BPM: No. of phases							

χ^2 (exact, 2 tailed)

Fisher (exact, 2 tailed)

Table F-2: Results statistical analysis (1), * = significant at α = 0,05; ** = significant at α = 0,10.

Appendix G: Contingency tables

All contingency tables generated as part of the statistical tests for correlations between the organizational and BPM project characteristics are included below.

Organization size

		Trigger (validated)		
		Part of an overarching (strategic) initiative	Independent project	Total
Organization size (validated)	Small	3	5	8
	Medium	6	5	11
	Large	4	3	7
	Very large	5	2	7
	Total	18	15	33

Table G-1: Organization size vs. trigger

		Business objective (validated)		
		Business performance	Business conformance	Total
Organization size (validated)	Small	6	2	8
	Medium	9	2	11
	Large	5	2	7
	Very large	5	2	7
	Total	25	8	33

Table G-2: Organization size vs. business objective

		Technical objective (validated)		
		Technical objective	No technical objective	Total
Organization size (validated)	Small	4	4	8
	Medium	4	7	11
	Large	5	2	7
	Very large	3	4	7
	Total	16	17	33

Table G-3: Organization size vs. technical objective

		Focus area (validated)			
		Core processes	Support processes	Both	Total
Organization size (validated)	Small	2	0	6	8
	Medium	5	1	5	11
	Large	3	2	2	7
	Very large	5	0	2	7
	Total	15	3	15	33

Table G-4: Organization size vs. focus area

		BPM analysis (validated)		
		Yes	No	Total
Organization size (validated)	Small	7	1	8
	Medium	11	0	11
	Large	7	0	7
	Very large	4	3	7
	Total	29	4	33

Table G-5: Organization size vs. BPM analysis

		BPM design (validated)		
		Yes	No	Total
Organization size (validated)	Small	8	0	8
	Medium	9	2	11
	Large	7	0	7
	Very large	7	0	7
	Total	31	2	33

Table G-6: Organization size vs. BPM design

		BPM implement (validated)		
		Yes	No	Total
Organization size (validated)	Small	3	5	8
	Medium	5	6	11
	Large	5	2	7
	Very large	7	0	7
	Total	20	13	33

Table G-7: Organization size vs. BPM implementation

		BPM enactment (validated)		
		Yes	No	Total
Organization size (validated)	Small	0	8	8
	Medium	2	9	11
	Large	2	5	7
	Very large	2	5	7
	Total	6	27	33

Table G-8: Organization size vs. BPM enactment

		BPM monitoring (validated)		
		Yes	No	Total
Organization size (validated)	Small	0	8	8
	Medium	1	10	11
	Large	3	4	7
	Very large	3	4	7
	Total	7	26	33

Table G-9: Organization size vs. BPM monitoring

		BPM evaluation (validated)		
		Yes	No	Total
Organization size (validated)	Small	0	8	8
	Medium	1	10	11
	Large	4	3	7
	Very large	2	5	7
	Total	7	26	33

Table G-10: Organization size vs. BPM evaluation

Profit motive

		Trigger (validated)		
		Part of an overarching (strategic) initiative	Independent project	Total
Profit motive (validated)	Profit	12	11	23
	Non-profit	6	4	10
	Total	18	15	33

Table G-11: Profit motive vs. trigger

		Business objective (validated)		
		Business performance	Business conformance	Total
Profit motive (validated)	Profit	19	4	23
	Non-profit	6	4	10
	Total	25	8	33

Table G-12: Profit motive vs. business objective

		Technical objective (validated)		
		Technical objective	No technical objective	Total
Profit motive (validated)	Profit	13	10	23
	Non-profit	3	7	10
	Total	16	17	33

Table G-13: Profit motive vs. technical objective

		Focus area (validated)			
		Core processes	Support processes	Both	Total
Profit motive (validated)	Profit	8	3	12	23
	Non-profit	7	0	3	10
	Total	15	3	15	33

Table G-14: Profit motive vs. focus area

		BPM analysis (validated)		
		Yes	No	Total
Profit motive (validated)	Profit	19	4	23
	Non-profit	10	0	10
	Total	29	4	33

Table G-15: Profit motive vs. BPM analysis

		BPM design (validated)		
		Yes	No	Total
Profit motive (validated)	Profit	21	2	23
	Non-profit	10	0	10
	Total	31	2	33

Table G-16: Profit motive vs. BPM design

		BPM implement (validated)		
		Yes	No	Total
Profit motive (validated)	Profit	15	8	23
	Non-profit	5	5	10
	Total	20	13	33

Table G-17: Profit motive vs. BPM implementation

		BPM enactment (validated)		
		Yes	No	Total
Profit motive (validated)	Profit	5	18	23
	Non-profit	1	9	10
	Total	6	27	33

Table G-18: Profit motive vs. BPM enactment

		BPM monitoring (validated)		
		Yes	No	Total
Profit motive (validated)	Profit	4	19	23
	Non-profit	3	7	10
	Total	7	26	33

Table G-19: Profit motive vs. BPM monitoring

		BPM evaluation (validated)		
		Yes	No	Total
Profit motive (validated)	Profit	6	17	23
	Non-profit	1	9	10
	Total	7	26	33

Table G-20: Profit motive vs. BPM evaluation

Manufacturing / non-manufacturing

		Trigger (validated)		
		Part of an overarching (strategic) initiative	Independent project	Total
Manufacturing (validated)	Manufacturing	5	4	9
	Non-manufacturing	13	11	24
	Total	18	15	33

Table G-21: Manufacturing / non-manufacturing vs. trigger

		Business objective (validated)		
		Business performance	Business conformance	Total
Manufacturing (validated)	Manufacturing	8	1	9
	Non-manufacturing	17	7	24
	Total	25	8	33

Table G-22: Manufacturing / non-manufacturing vs. business objective

		Technical objective (validated)		
		Technical objective	No technical objective	Total
Manufacturing (validated)	Manufacturing	5	4	9
	Non-manufacturing	11	13	24
	Total	16	17	33

Table G-23: Manufacturing / non-manufacturing vs. technical objective

		Focus area (validated)			
		Core processes	Support processes	Both	Total
Manufacturing (validated)	Manufacturing	3	1	5	9
	Non-manufacturing	12	2	10	24
	Total	15	3	15	33

Table G-24: Manufacturing / non-manufacturing vs. focus area

		BPM analysis (validated)		
		Yes	No	Total
Manufacturing (validated)	Manufacturing	8	1	9
	Non-manufacturing	21	3	24
	Total	29	4	33

Table G-25: Manufacturing / non-manufacturing vs. BPM analysis

		BPM design (validated)		
		Yes	No	Total
Manufacturing (validated)	Manufacturing	8	1	9
	Non-manufacturing	23	1	24
	Total	31	2	33

Table G-26: Manufacturing / non-manufacturing vs. BPM design

		BPM implement (validated)		
		Yes	No	Total
Manufacturing (validated)	Manufacturing	4	5	9
	Non-manufacturing	16	8	24
	Total	20	13	33

Table G-27: Manufacturing / non-manufacturing vs. BPM implementation

		BPM enactment (validated)		
		Yes	No	Total
Manufacturing (validated)	Manufacturing	1	8	9
	Non-manufacturing	5	19	24
	Total	6	27	33

Table G-28: Manufacturing / non-manufacturing vs. BPM enactment

		BPM monitoring (validated)		
		Yes	No	Total
Manufacturing (validated)	Manufacturing	1	8	9
	Non-manufacturing	6	18	24
	Total	7	26	33

Table G-29: Manufacturing / non-manufacturing vs. BPM monitoring

		BPM evaluation (validated)		
		Yes	No	Total
Manufacturing (validated)	Manufacturing	2	7	9
	Non-manufacturing	5	19	24
	Total	7	26	33

Table G-30: Manufacturing / non-manufacturing vs. BPM evaluation

Predominant strategic orientation

		Trigger (validated)		
		Part of an overarching (strategic) initiative	Independent project	Total
Strategic orientation	Operational excellence	2	9	11
	Customer intimacy	10	4	14
	Product leadership	6	2	8
	Total	18	15	33

Table G-31: Strategic orientation vs. trigger

		Business objective (validated)		
		Business performance	Business conformance	Total
Strategic orientation	Operational excellence	8	3	11
	Customer intimacy	10	4	14
	Product leadership	7	1	8
	Total	25	8	33

Table G-32: Strategic orientation vs. business objective

		Technical objective (validated)		
		Technical objective	No technical objective	Total
Strategic orientation	Operational excellence	3	8	11
	Customer intimacy	6	8	14
	Product leadership	7	1	8
	Total	16	17	33

Table G-33: Strategic orientation vs. technical objective

		Focus area (validated)			
		Core processes	Support processes	Both	Total
Strategic orientation	Operational excellence	2	2	7	11
	Customer intimacy	10	0	4	14
	Product leadership	3	1	4	8
	Total	15	3	15	33

Table G-34: Strategic orientation vs. focus area

		BPM analysis (validated)		
		Yes	No	Total
Strategic orientation	Operational excellence	11	0	11
	Customer intimacy	11	3	14
	Product leadership	7	1	8
	Total	29	4	33

Table G-35: Strategic orientation vs. BPM analysis

		BPM design (validated)		
		Yes	No	Total
Strategic orientation	Operational excellence	10	1	11
	Customer intimacy	14	0	14
	Product leadership	7	1	8
	Total	31	2	33

Table G-36: Strategic orientation vs. BPM design

		BPM implement (validated)		
		Yes	No	Total
Strategic orientation	Operational excellence	7	4	11
	Customer intimacy	10	4	14
	Product leadership	3	5	8
	Total	20	13	33

Table G-37: : Strategic orientation vs. BPM implementation

		BPM enactment (validated)		
		Yes	No	Total
Strategic orientation	Operational excellence	3	8	11
	Customer intimacy	2	12	14
	Product leadership	1	7	8
	Total	6	27	33

Table G-38: Strategic orientation vs. BPM enactment

		BPM monitoring (validated)		
		Yes	No	Total
Strategic orientation	Operational excellence	4	7	11
	Customer intimacy	2	12	14
	Product leadership	1	7	8
	Total	7	26	33

Table G-39: : Strategic orientation vs. BPM monitoring

		BPM evaluation (validated)		
		Yes	No	Total
Strategic orientation	Operational excellence	3	8	11
	Customer intimacy	2	12	14
	Product leadership	2	6	8
	Total	7	26	33

Table G-40: : Strategic orientation vs. BPM evaluation

Appendix H: Sample composition

In Paragraph 5.1, the industry composition of the sample used in this research was shown, here, a comparison is made between the sample used here and Kennedy's (2008) – worldwide – consulting market share by industry.

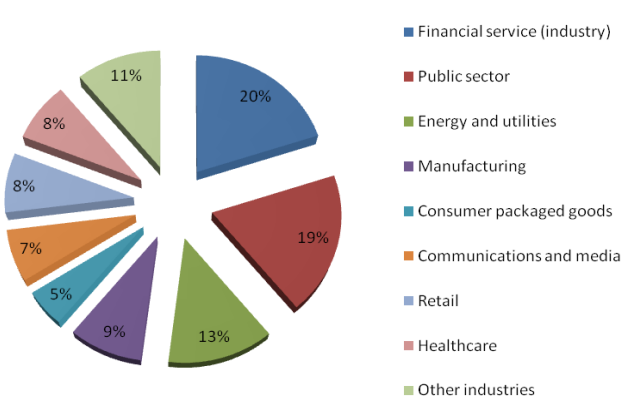

Figure H-1: Consulting market share by client industry (2008) adapted from Kennedy (2008)

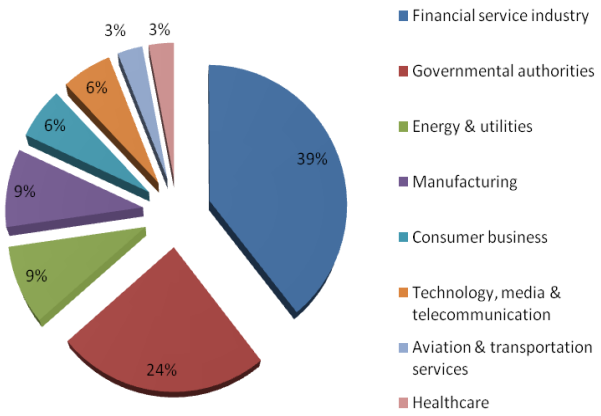

Figure H-2: Sample composition based on Deloitte classification

As can be observed from Figure H-1 and Figure H-2, the representation of the financial service industry in the research's sample is relatively big, but this industry has the largest market share in the worldwide consulting market as well. Likewise, the public sector – or governmental authority – has a large share. Even though the definitions of the various industries are not exactly similar a comparison does present a reasonable similarity between the shares of the various industries in the sample used and the consulting market as a whole.