Successful Benefits Realization in IS/IT Projects – Essays on Benefits Management

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„Zwei Dinge verleihen der Seele am meisten Kraft: Vertrauen auf die Wahrheit und Vertrauen auf sich selbst.“

- Seneca

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Writing a dissertation thesis requires a certain commitment and dedication towards learning and acknowledging. On the one hand, we have to learn and understand what research is, what exciting and especially relevant research fields exist, and in particular how much our respective research field of interest has already grown. On the other hand, we have to acknowledge how much other scholars have already contributed with their work and on whose giant shoulders we are allowed to stand today.

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Essen, June 2018 *Florian Hesselmann*

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INTRODUCTION TO

"SUCCESSFUL BENEFITS REALIZATION IN IS/IT PROJECTS – ESSAYS ON BENEFITS MANAGEMENT"

Abstract

Many organizations invest heavily in IS/IT to realize benefits (e.g., productivity increases, cost reductions, etc.) after a successful IS/IT implementation. As a means for this purpose, several approaches to achieving and maximizing the anticipated benefits from IS/IT investments have evolved under the term benefits management (BM), which is defined as "organizing and managing IS/IT initiatives so that potential benefits arising from the use of IT are actually realized". As studies and reports published since 1996 consistently find BM to be a highly effective management approach for the achievement of organizational goals, it seems surprising that effective BM implementations in practice are still missing. Therefore, the overall goal of this dissertation thesis is to investigate and understand the factors that positively influence the adoption and successful implementation of BM in IS/IT projects. For this purpose, five separate, cumulative research essays have been developed, each investigating another aspect of BM. In this initial essay, an introduction to BM's research background is provided, along with a description of the main research questions that guided the applied research process. This introduction also describes how the research process is reflected in the essay structure of this thesis. I conclude with the results, contributions, and limitations of the underlying research while I delineate opportunities for future research.

Keywords: benefits management, benefits realization, IS/IT value, organizational change

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List of Abbreviations

BDN Benefits dependency network

BM Benefits management

CRM Customer relationship management

IS Information system

IT Information technology

PLS Partial least squares

RBV Resource-based view

1 Introduction

Benefits arising from investments in information systems and information technology (IS/IT) have been the subject of much debate for many years (Doherty, Ashurst, & Peppard, 2012; Kohli & Grover, 2008; Nielsen & Persson, 2017; Paré, Bourdeau, Marsan, Nach, & Shuraida, 2008; Shang & Seddon, 2000). Many organizations invest heavily in IS/IT to realize benefits after a successful IS/IT implementation. These benefits range from achieving business objectives and preventing performance deterioration to enabling organizations to achieve competitive advantage by exploiting business opportunities or creating new organizational competencies (Peppard, Ward, & Daniel, 2007, p. 5). Overall, such benefits represent a significant element of IS/IT investments' value (Brynjolfsson & Hitt, 2000, p. 24).

However, the achievement of such benefits from IS/IT projects is rather demanding, as the latter are typically accompanied by a particular degree of uncertainty, because even in quite similar organizational settings, identical IS/IT solutions can lead to different results (Orlikowski, 1992, pp. 421–423; Sahay & Robey, 1996, p. 279). Furthermore, IS/IT project outcomes are more emergent than planned over the system's lifecycle (Orlikowski, 1996, p. 89), making the initial business case rather unreliable. Such uncertainty is attended by additional organizational factors with influence on benefits realization, such as the fluctuation of relevant stakeholders, changes in power relationships, and resistance to change (Love, Irani, Standing, Lin, & Burn, 2005). Without reliable ways to manage and realize the benefits of IS/IT projects, the outlined problems and incidents severely increase the risk that the invested time, money, and organizational resources are wasted without any positive organizational impact.

To address these issues, several approaches to achieving and maximizing the anticipated benefits from IS/IT investments have evolved under the term *benefits management* (BM), which is defined as "organizing and managing IS/IT initiatives so that potential benefits arising from the use of IT are actually realized" (Ward, Taylor, & Bond, 1996, p. 214). It differs from other management approaches like project portfolio management in that it puts a particular emphasis on IS/IT investment's benefits and their realization by conducting appropriate business changes besides technical implementations themselves (Ward, De Hertogh, & Viaene, 2007, p. 2). For instance, IT project management has facilitated the task of selecting, implementing, and deploying a data warehouse system in the form of a project. Unfortunately, the realization of the associated benefits, such as better decision-making and enhanced data quality, is still comparatively difficult with this technology alone. Consequently, intermediate business processes are needed to improve the effectiveness and efficiency of such IS/IT initiatives (Dehning & Richardson, 2002; Melville, Kraemer, & Gurbaxani, 2004), and which are ultimately derived from "understanding the business and committing it to change" (Earl, 1992, p. 101).

Although studies and reports published since 1996 consistently consider BM to be a highly effective management approach for the achievement of organizational goals (Ashurst, Freer, Ekdahl, & Gibbons, 2012; Ward & Daniel, 2006; Ward et al., 2007), it seems surprising that scholars generally still find the rate of effective BM implementations in practice to be very low (e.g., Braun, Mohan, & Ahlemann, 2010; Breese, Jenner, Serra, & Thorp, 2015; Coombs, Doherty, & Neaga, 2013; Päivärinta & Dertz, 2008). Therefore, in this thesis I aim to contribute to the existing body of knowledge by investigating the factors that positively influence the adoption and successful implementation of benefits management in IS/IT projects.

The following thesis consists of five essays, each investigating a separate research question on BM. In this initial essay, an introduction into this thesis' theoretical background is provided, along with a description of the underlying research methods, and an elaboration on the following BM essays' relation. Therefore, in Section 2 I describe BM in detail and relate it to adjacent research streams while, subsequently, developing the main research questions that determined my studies' direction. Afterwards, I delineate the research design including the underlying epistemological positions, as well as the research process and applied methods. In Section 4 this thesis' structure is described in detail including a summary of each essay, while I summarize my key results, limitations, contributions, and future research in Section 5.

2 Research Background

2.1 Introduction to Benefits Management

Generating business benefits and value from IS/IT investments represents one of the major research streams in the IS discipline (Dehning, Richardson, Urbaczewski, & Wells, 2004; Kohli & Grover, 2008), which commonly refers to IS/IT's organizational impacts, such as productivity increases, cost reductions, or enabling the achievement of competitive advantage (Devaraj & Kohli, 2003, p. 275; Peppard et al., 2007, p. 5). Existing studies have found that IS/IT does not create its anticipated benefits in isolation (Melville et al., 2004, p. 294; Soh & Markus, 1995, pp. 38–39; Wade & Hulland, 2004, pp. 129–130); instead, it requires complementary organizational factors in different shapes and sizes, such as people and management, routines, business processes, knowledge assets, and others., which play an *enabling* role in generating IS/IT business value. In conjunction with these factors, an organization has the necessary foundation to realize benefits by adapting or redesigning its business processes to the new IS/IT functionalities (Melville et al., 2004, p. 294; Wade & Hulland, 2004, pp. 129–130). These benefits can manifest on different levels, such as the individual, company, industry, or economy level (Davern & Kauffman, 2000, p. 127; Devaraj & Kohli, 2003, p. 275; Kohli & Grover, 2008, p. 26). Furthermore, the alignment and partnering between IT and business has also been found to be an important success factor in delivering benefits from IS/IT (Devaraj & Kohli, 2003, p. 285; Peppard & Ward, 1999, p. 55). As a concrete example, to realize benefits of a customer relationship management (CRM) system, such as increased sales and follow up leads, new or adapted business processes are necessary in addition to the IS/IT implementation itself. Subsequently, in the marketing and sales departments, existing process operations and work routines have to be adapted to the additional storage and processing of customer-oriented information. Customer groups need to be set up and new customer segments have to be conceptualized for a specialized communication. It may take several months to years for all involved stakeholders from business and IT to comprehensively implement these changes in their respective areas.

Unfortunately, in past studies most conceptualizations of IS/IT business benefits and value generally remain very abstract (e.g., Earl, 1992; Joshi, 1991; Markus & Benjamin, 1996; Zmud & Cox, 1979). Thus, the IS/IT business value creation process still remains a "grey box" (Schryen, 2013, p. 159) that demands further attention in regard to how, why, and when IS/IT investments deliver business value. Based on this motivation, BM has emerged as an adjacent research topic, dealing with the comprehensive approach of realizing business benefits from IS/IT investments. In this context, scholars have introduced concepts like "value conversion contingency" (Davern & Kauffman, 2000, p. 122), "conversion effectiveness" (Weill, 1992,

p. 307), and "benefits realization capability" (Ashurst, Doherty, & Peppard, 2008, p. 355) to denote organizations' ability to transform IS/IT resources into actual benefits.

In general, BM is to be distinguished from adjacent research streams as IS evaluation and IS success (Petter, DeLone, & McLean, 2012, p. 356). IS evaluation is defined as "a decision-making technique that allows an organization to benchmark and define costs, benefits, risks and implications of investing in IS/IT systems and infrastructures" (Irani, Sharif, & Love, 2005, pp. 213–214). In the IS evaluation literature, many methods exist for the (ex-ante) analysis of an information system's characteristics in conjunction with the organizations objectives to determine its value for the organization (Fitzgerald, 1998). In comparison, BM has a rather comprehensive focus on realizing benefits from the use of IS/IT, as it describes the necessary process steps and activities on both IT and business sides through the whole IS/IT project lifecycle (Ward et al., 1996, p. 215). Finally, IS success research investigates measures used to determine the (ex-post) success of an IS/IT after its implementation at the organization (Delone, 2003; DeLone & McLean, 1992).

Research on BM began in the mid-1990s with an empirical study on industry practices in the UK (Ward et al., 1996, p. 214) that found many organizations were unsatisfied with the available methods for realizing benefits. To address this issue, Ward et al. (1996) presented the Cranfield BM process model (see Figure 0-1) as a means of overcoming this hurdle. At the same time, other authors (most of whom come from a consulting background) from the UK developed quite similar approaches for BM and published these in books (e.g., Ashurst, 2011; Bradley, 2010; Remenyi, White, & Sherwood-Smith, 1997; Thorp, 1999; Ward & Daniel, 2006). However, the Cranfield BM process model remains the most widely used and cited one in this field of research to this day. It identifies five activities as key for benefits management: (1) identification and structuring of benefits, (2) planning benefits realization, (3) executing the benefits realization plan, (4) evaluating and reviewing results, and (5) analysis of potential for further benefits. The basic idea behind the model is the lifecycle perspective of the benefits of IS/IT investments: benefits must be identified, evaluated (ex ante), realized, and re-evaluated (ex post).

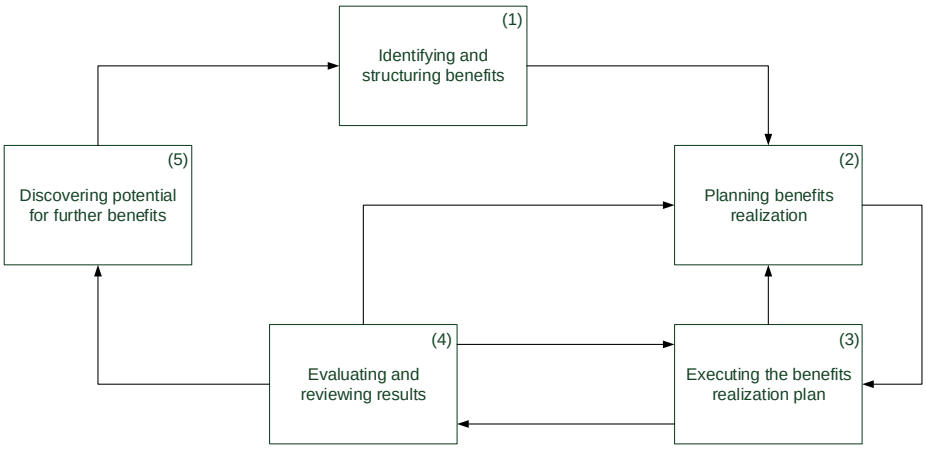

Figure 0-1. Cranfield BM process model (Ward et al., 1996, p. 216)

In an attempt to explain the impacts of benefits management, scholars have drawn on well-established theories. For instance, Doherty (2013) investigated the relationship between benefits management and socio-technical theory to identify commonalities and differences, with the former having a higher recognition of modern organizations' dynamic context and a far more explicit focus on delivering organizational value. In another study, Ashurst et al. (2008) applied the resource-based view (RBV) to develop a conceptual model of a benefits realization capability that comprised several benefits realization competencies, with each being underpinned by concrete practices.

Furthermore, scholars have focused on developing helpful tools for benefits identification and analysis, such as the benefits dependency network (BDN) (Coombs, 2015; Peppard et al., 2007). This tool is used to link the overall investment objectives and the required benefits (the ends) with the necessary business changes (the ways) and the essential IT capabilities (the means) that enable these changes.

2.2 Research Gap and Research Questions

Although extant research on BM has contributed meaningful frameworks and models, BM is still a comparatively new approach in practice. Currently, only a few organizations have methodical standards in place to realize benefits from IS/IT investments (e.g., Braun et al., 2010; Breese et al., 2015; Marnewick, 2016). In 2007, the results of another study in the UK were presented that built on Ward et al.'s (1996) findings. Although the adoption of BM had increased from 12% to 25% in the participating organizations, it was still regarded immature (Ward et al., 2007, p. 4). Scholars termed this issue a 'knowing-doing' gap (Pfeffer & Sutton, 2000), with existing BM practices from research not being applied by practitioners (Ashurst & Hodges, 2010, p. 231).

Evidently, it is difficult to realize benefits from IS/IT investments through organizational change, because identifying and conducting the necessary business changes requires the availability of skills and knowledge from business and IT (Markus, 2004, p. 6; Peppard & Ward, 2005, p. 56). Consequently, interactive relationships among technological and social systems need to be manipulated. For instance, convincing employees of the need for particular changes in their existing work routines, to agree to a suitable change process, and to overcome resistance is a very demanding task (Fernandez & Rainey, 2006, pp. 169–170). Similarly, in a recent study on inhibitors and facilitators regarding benefits realization, Coombs (2015, p. 377) found staff resistance to new working routines a very common and relevant inhibitor. Therefore, as IS/IT projects are typically linked with politics, motivation, and conflict, many problems emerge through such stakeholder interactions and relations (Markus & Benjamin, 1996, p. 390; Robey, Farrow, & Franz, 1989, p. 1173). Consequently, when implementing and executing BM, the needs of affected stakeholders have to be thoroughly considered. Therefore, based on the involved parties' different priorities and goals, specific control mechanisms are necessary to increase their contribution and cooperation (Clark, Cavanaugh, Brown, & Sambamurthy, 1997, p. 447; Kirsch, Sambamurthy, Ko, & Purvis, 2002, pp. 493–494). These mechanisms facilitate business changes, and thus foster the successful benefits realization from IS/IT investments.

Overall, the review literature sheds light on different BM-related aspects, but does not provide clear recommendations on successful BM implementations, including how to steer the complex social interactions between business and IT towards mutual organizational goals – in other words, benefits realization. Thus, the existing challenges of organizations to realize benefits from IS/IT projects require further investigations. This includes further variables that have an impact on successful benefits realization in organization, spanning factors that positively influence the adoption of BM from an individual perspective, as well as the analysis of further contextual factors like top management support and incentives with regards to benefits realization success. To that end, the following two main research questions are addressed in this thesis:

(RQ1) What are the determinants of benefits management acceptance on an individual level and which factors influence these?

(RQ2) Which factors impact the successful realization of benefits and how can stakeholders' actions be steered towards this goal?

To answer both research questions, I broke them down into smaller, more precise ones in the following essays of this thesis. In this introduction's remaining sections, I will describe the research processes and methods that were applied to investigate the research questions, and afterwards discuss the contributions and limitations of this dissertation.

3 Research Design

3.1 Ontological and Epistemological Position

While ontology is concerned with the question of whether or not a "real world" exists (Niehaves, 2007, p. 3), epistemology is the "science of analyzing the way human beings comprehend knowledge about what is perceived to exist" (Becker & Niehaves, 2007, p. 201). Traditionally epistemological positions are represented on a continuum between positivism (Orlikowski & Baroudi, 1991, pp. 8–12) and interpretivism (Klein & Myers, 1999; Orlikowski & Baroudi, 1991, pp. 13–18). Positivist research postulates that the world exists objectively and independent of human cognition (Becker & Niehaves, 2007), in which "a priori fixed relationships within phenomena [exist] which are typically investigated with structured instrumentation" (Orlikowski & Baroudi, 1991, p. 5). On the other hand, interpretivist research assumes that people create their own subjective meanings as they interact with the world, rejecting the existence of an "objective" account of events and thus investigating phenomena through a shared understanding among participants (Orlikowski & Baroudi, 1991, p. 5).

As many disciplines (e.g., business administration, computer science, psychology, and sociology) are applied in IS research, it is typically characterized by a plurality of research methods from different epistemological positions (Becker & Niehaves, 2007, p. 197; Mingers, 2003, p. 244). While traditionally the application of single research methods to study phenomena in the IS discipline finds many supporters, other scholars argue for the value of combining different research methods to "gain richer and more reliable results" (Mingers, 2001, p. 243; Onwuegbuzie & Leech, 2005) regardless of the underlying epistemology.

In this thesis, I applied these suggestions for combined research methods by integrating qualitative, quantitative, and design science research. As the associated research process proceeds through several phases, each phase is characterized by different tasks and problems. In each of these phases a particular research method is considered more useful and to reveal more aspects, than other research methods (Mingers, 2001, p. 244). Consequently, this combination of research methods results in a richer comprehension of the respective phenomena. Likewise, this approach is associated with a high level of difficulty in practice (Mingers, 2001, p. 249). An overview of the research process and applied research methods is outlined in the following section.

3.2 Research Process and Employed Methods

The research process of this thesis consists of five phases, each represented by one essay. Although each phase is used to answer a different research question on BM, in combination they constitute the overall research process as depicted in Figure 0-2.

Literature review

The research process was initiated by a systematic literature review on BM (Fettke, 2006; Webster & Watson, 2002), in which the extant body of knowledge was analyzed from four different perspectives (i.e., BM framework and method, BM context, BM user, and BM governance). It provided an overview of existing research on BM and unveiled opportunities for future research related to each perspective. A key finding was that prior research focused largely on methodical aspects of BM, but only scratched the surface of adoption- and governance-related issues that might be the cause of low adoption rates in practice. Based on these findings, further research efforts were commenced.

Exploratory field study

The second step in the research process was an exploratory qualitative field study with subject-matter-experts (Klein & Myers, 1999; Miles & Huberman, 1984) which investigated an individual's acceptance of BM. A conceptual model of BM acceptance was developed by drawing on the theory of planned behavior. Accordingly, appropriate constructs and propositions from BM literature and the field study were derived and relevant constructs on the organizational level were also included.

Quantitative survey

The literature review's insights revealed the lack of confirmatory, quantitative studies on BM, which limits the generalizability of existing BM practices. Therefore as a next step a survey on BM was carried out. For this purpose, the findings from a prior explorative study on BM practices and the literature review were applied in combination to develop and test a conceptual model. In doing so, the study's goal was to explain how value generation through BM is realized by conducting a quantitative survey and analyzing the data by means of partial least squares (Chin, Marcolin, & Newsted, 2003; Fornell & Bookstein, 1982). The resulting insights were applied in the formulation of the BM design theory in the following step.

Design theory development (benefits management) and evaluation

As was discovered in the preceding research phases, it is difficult to realize benefits from IS/IT investments by conducting business changes, in particular because doing so requires the availability of requisite skills and knowledge from both business and IT. Therefore, the objective of the fourth research phase was to develop a validated design theory for BM that prescribes how to steer the actions of both business and IT towards successful benefits realization (Gregor

& Jones, 2007; Hevner, March, Park, & Ram, 2004). In doing so, the findings from a broad exploratory field study of 29 companies and the preceding research phases were applied to derive appropriate meta-requirements (Walls, Widmeyer, & El Sawy, 1992). Based on these and the previous insights, organizational control theory was applied to develop eight design principles and testable propositions that are subjected to evaluative interviews with subject-matter experts to ensure their validity.

Artifact development (reference model)

The goal of the final research step was to contribute to the adoption of BM by organizations through the development of a dedicated BM reference model (Farbey, Land, & Targett, 1999; Fettke & Loos, 2004). While the BM design theory provides universal and validated guidelines on how to steer benefits realization towards success, it still operates (along with existing BM artifacts from academia) on a high level of abstraction, making implementation for practitioners rather difficult without further advice. Thus, the reference model represents one possible instantiation of the BM design theory that, while limited in terms of generalizability, nonetheless provides practitioners with operative, comprehensible, and applicable guidelines on successful BM implementations.

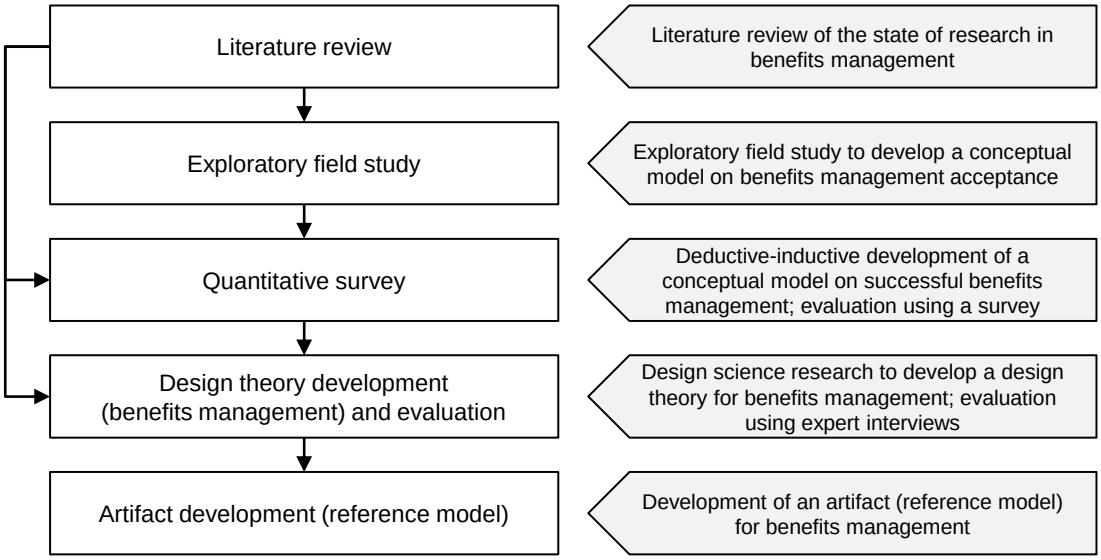

Figure 0-2. Research process overview

4 Structure of the Thesis and Summary of Essays

This thesis has a cumulative format to increase publication opportunities at respective information systems journals and conferences. Furthermore, such a publication strategy allows for the further improvement of each essay based on the respective journal or conference reviewers' feedback in verifying each essay's quality. Therefore, prior versions of the following essays have already been published previously in a journal or conference, are currently under review at a journal, or are intended to be submitted for publication soon (see Table 0-1). Although all included essays build on each other, each essay investigates a different BM topic with dedicated research objectives. Figure 0-3 provides an overview of this thesis' structure.

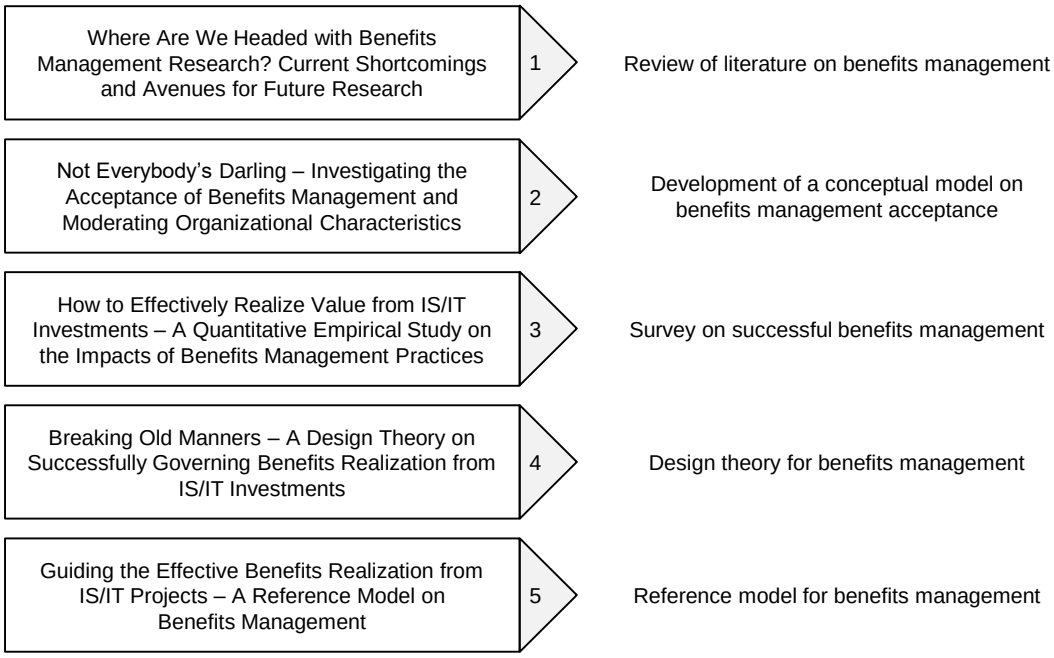

Figure 0-3. Structure of the thesis

Essay 1: Review of literature on benefits management

In the first essay, the current state of the art research on BM is reviewed by collecting and analyzing the extant literature on BM. In this section, the research goal lies in understanding why BM is still rarely adopted in practice by classifying the literature in an adopted multi-perspective framework comprising the following perspectives: BM framework and method, BM context, BM user, and BM governance. For this purpose, an overall total of 56 papers on BM are classified and analyzed, resulting in both an overview of existing BM research and avenues for future research. An important finding is that studies on BM adoption from an individual perspective as well as BM governance are rather rare and therefore demand further attention.

Essay 2: Development of a conceptual model on benefits management acceptance

Based on the findings of the previous essay's literature review, this essay's research goal is to understand the determinants of BM acceptance by developing a conceptual model based on the theory of planned behavior and BM literature. Furthermore, the insights from complementary explorative interviews on BM acceptance with 11 subject-matter-experts are added to the model development. It is found that an individual's role in BM and specific organizational culture characteristics play a major role in influencing BM acceptance's determinants. The findings contribute to BM research by providing a deeper understanding of BM acceptance and adoption. Practitioners can use these insights to launch more successful change initiatives when implementing BM.

Essay 3: Survey on successful benefits management

In the third essay, dedicated BM practices that have been proposed by scholars are examined with regards to their contributions towards the successful achievement of anticipated benefits. Drawing on the findings from a prior explorative study on BM practices and the BM literature, a conceptual model is developed and tested which explains how value generation through BM is realized. For this purpose, data collected from 456 individuals involved in benefit-oriented projects is used and analyzed by means of partial least squares (PLS). Collectively, the results have important theoretical and practical implications since they provide quantitative evidence of how IS/IT projects should be managed in order to successfully realize benefits. Specifically, organizations should acknowledge the particular relevance of benefits planning and benefits review practices. Furthermore, the findings suggest that BM practices are facilitated by business process knowledge on the part of the project team and intense business-IT communication. Finally, it is also found that incentive management as a moderator negatively influences benefits review practices' impacts on benefits realization success.

Essay 4: Design theory for benefits management

The fourth essay illuminates and addresses the problem of organizations' inability to manage and realize benefits from IS/IT investments. Based on a broad explorative field study of 29 companies and the BM literature review, this essay contends that BM implementations often suffer from several factors, including unclear accountability for benefits realization and organizational resistance to change, which are represented in a set of six meta-requirements. To address these appropriately, control mechanisms from organizational control theory are utilized to develop design principles and testable propositions that are subsequently evaluated in expert interviews. One interesting contribution of the design theory in the context of BM is the combination and utilization of core control mechanisms and control context mechanisms, including bureaucratic (formal) controls as well as socialization-based (informal) controls. In its conclusion, the essay contributes to both theory and practice by providing a theoretically

grounded and validated design theory of BM, whose design principles can be instantiated by firms and impact the whole organization.

Essay 5: Reference model for benefits management

The ‘knowing-doing’ gap between research and practice represents a demanding challenge in BM research and is partly grounded in existing BM frameworks and methods lacking an appropriate degree of detail and applicability. To address this issue, the last essay develops a reference model for BM that provides organizations with detailed guidelines and activities on the successful realization of IS/IT projects’ benefits. For this purpose, the reference model consists of a process model, a role model, a RACI matrix, and a benefits change management process model. To ensure a valid foundation, the reference model is developed as one possible instantiation of the prior BM design theory that has already been evaluated in practice. However, in contrast to the latter, the reference model’s applicability is limited to organizations with several BM-related characteristics (i.e., a central IT organization, mature reporting structures, etc.) as its higher level of detail comes with a lower level of generalizability. Thus it contributes guidelines that are more detailed, comprehensible, and applicable for practitioners.

5 Summary

This thesis investigates the successful realization of benefits from IS/IT investments and extends the existing body of knowledge on BM. Each essay in this thesis contributes to the research questions in several ways. While most of the essays have been previously published, the others are currently under review or intended to be published in the future. The following table provides an overview of each essay along with corresponding publications and my respective contributions to them.

Table 0-1. Essay publication overview

Essay	Corresponding reference	VHB JQ 3 ranking	Method	Own contribution
Where Are We Headed with Benefits Management Research? Current Shortcomings and Avenues for Future Research	Hesselmann & Mohan, 2014	B	Literature review	• Idea generation • Research design selection • Literature collection and analysis • Derivation of further research fields • Manuscript development • Research process guidance
Not Everybody's Darling – Investigating the Acceptance of Benefits Management and Moderating Organizational Characteristics	Hesselmann, Ahlemann, & Böhl, 2015	C	Field study	• Idea generation • Research design selection • Literature collection and analysis • Data collection and analysis • Artifact design and evaluation • Manuscript development
How to Effectively Realize Value from IS/IT Investments – A Quantitative Empirical Study on the Impacts of Benefits Management Practices		(C)	Survey	• Literature collection and analysis • Artifact design • Data analysis • Manuscript development
Breaking Old Habits – A Design Theory on Successfully Steering Benefits Realization from IS/IT Investments	Ahlemann, Hesselmann, Braun, & Mohan, 2013	B	Design science research	• Idea generation • Research design selection • Literature collection and analysis • Data collection and analysis • Artifact design and evaluation • Manuscript development • Research process guidance
Guiding the Effective Benefits Realization from IS/IT Projects – A Reference Model on Benefits Management			Reference modeling	• Idea generation • Research design selection • Literature collection and analysis • Artifact design • Manuscript development • Research process guidance

(C) - Paper is in submission progress, target journal on C level has to be decided*

In conclusion, each essay contributes to both theory and to practice alike by advancing research on BM while also providing meaningful insights on effective BM implementations in practice. Scholars will benefit from a deeper understanding of the successful adoption and implementation of benefits management, which is gained through the application of quantitative as well

as qualitative research methods. Practitioners gain insights on how to steer the realization of benefits in the organization and overcome typical challenges like lacking business IT collaboration, stakeholder resistance, inadequate benefits measurement, etc.

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Ashurst, C., Freer, A., Ekdahl, J., & Gibbons, C. (2012). Exploring IT-enabled innovation: A new paradigm? *International Journal of Information Management*, *32*(4), 326–336.

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WHERE ARE WE HEADED WITH BENEFITS MANAGEMENT RESEARCH? CURRENT SHORTCOMINGS AND AVENUES FOR FUTURE RESEARCH[1]

Abstract

In 1996, the Cranfield benefits management (BM) process model was developed as a response to organizations' dissatisfaction with the results of information systems and information technology (IS/IT) projects. Beyond traditional project management dimensions such as time, cost, and quality, BM emphasizes the need to identify, plan, realize, and review benefits, particularly by means of business changes. The existing literature presents several BM frameworks and methods, signaling its character as an evolving discipline. Despite this progress in research, there are dissatisfyingly low BM adoption rates in practice. We aim to understand why BM is still rarely used in practice by classifying the literature in an adopted multi-perspective framework. Our findings indicate an imbalance between common studies on the conduction of BM and highly underrepresented concepts of its adoption and governance in organizations. We conclude that the BM discipline still has open fields and white spots, and needs to gradually change direction.

Keywords: benefits management, adoption, organizational change, literature review

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List of Abbreviations

BDN Benefits dependency network

BM Benefits management

IS Information system

IT Information technology

RBV Resource-based view

SEM Structural equation modelling

1 Introduction

Motivated by the low success rates of information systems / information technology (IS/IT) projects, the effective management of such projects and, consequently, their contribution to business value, has been a vital field in IS research for several years. While early research concentrated on investigating IS success (DeLone & McLean, 1992), and executing and finishing projects with the ex-ante specified cost, time, and scope constraints, the evaluation of IS/IT investments regarding delivering the anticipated IS/IT value was neglected. Practitioners, as well as scholars, have realized the need for management concepts that function parallel to project management, but aim to deliver project benefits (not just the immediate project results) that will support long-term organizational goals. For instance, past research has facilitated the task of selecting, implementing, and deploying a customer relationship management (CRM) system in the form of a project. But it is still comparatively difficult to realize the associated benefits, such as increasing sales and customer satisfaction, with this technology. This is just one example for the many cases in which the organizational goals weren't accomplished while instead the IS/IT itself was partly confronted with user resistance or even rejection (Martinsons & Chong, 1999, pp. 129–130). In this context, benefits management (BM) has evolved over the past two decades as an independent research discipline that investigates the successful realization of IT project benefits (Ward, Taylor, & Bond, 1996). It emphasizes organizational change as an important prerequisite for realizing benefits from IS/IT investments, and is defined as "organizing and managing IS/IT initiatives so that potential benefits arising from the use of IT are actually realized" (Ward et al., 1996, p. 214).

When analyzing studies and reports published since 1996, which consistently find BM to be a highly effective management approach, it seems surprising that scholars generally still find the BM adoption rate to be very low (e.g., Breese, Jenner, Serra, & Thorp, 2015; Coombs, Doherty, & Neaga, 2013; Odusanya, Coombs, & Doherty, 2015; Päivärinta & Dertz, 2008). This holds true even for those countries, where its initial development began, like the UK, and raises the suggestion that there may be some serious barriers affecting its adoption (Breese et al., 2015, p. 1449). Unfortunately, research to date, particularly explanations from BM theory, provides little help in understanding these low application and adoption rates. This might be because the available empirical studies only focus on BM's methodological aspects such as the processes, methods, and tools (Flak & Solli-Sæther, 2013; Päivärinta & Dertz, 2008). Detailed insights, reports, and explanations that attempt to study other perspectives on BM are rare. Consequently, elements that might enable the diffusion and adoption of BM practices, such as employee needs and concerns, governance mechanisms, and organizational culture, are mostly underrepresented in research (Päivärinta & Dertz, 2008). A holistic approach is necessary to understand the problem of low adoption in practice. Even though the BM methodology might be sound and effective, its potential advantages might never be realized if it is

not aligned to the organizational environment and employees' needs. This might result in this management concept being branded a failure and dropped. Drawing on organizational change research, we propose that BM adoption should be studied from multiple perspectives in order to understand the phenomenon at hand (Leavitt & Bahrami, 1988).

Overall, we are concerned about the current research situation, which is highly relevant for the future progress of BM. We see a need to analyze the BM literature holistically, in order to reveal the imbalances in research interests, and identify areas where our understanding is still inadequate. The revelations as a result of a thorough literature review might help shift future research efforts to areas that will help improve BM adoption and its success rate. The research goal of the underlying study is to take stock, consolidate past findings, and to identify white spots, i.e. topics of interest for BM that have been neglected, but are critical for the successful evolution of this management discipline. For this purpose, we first adapt an analysis framework for organizational change to the BM characteristics, which are a people, technical, control, and an organizational perspective. We then search for BM-related publications in journals and conferences, as proposed by Webster & Watson (2002, p. xvi), assign them to the dimension on which they focus, thereby building clusters of researched topics. In the next step, we analyze the content of the publications to identify what has been done, in order to formulate recommendations for future research. In doing so, we offer scholars the big picture and ideas for future research, and ways in which they can contribute to the development of the BM field. Practitioners can apply our analysis framework as a holistic lens to locate the potential for improvement in their BM implementation, and make use of the insights that our state of the art analysis provides.

The essay is organized as follows: Section 2 provides an overview of our theoretical foundation, forming the bases of BM. Afterwards, we build our analysis framework and delineate the literature review process by describing our data collection and analysis. This is followed by the presentation of our descriptive and concept-centric results. In Section 5, we discuss our results and future research opportunities, while Section 6 includes the conclusion and our study's limitations.

2 Theoretical Foundation

BM research started to evolve in the mid-1990s, when Ward et al. (1996, p. 214) conducted an empirical study on industry practices in the UK. According to this initial study, many organizations were dissatisfied with the available methods for realizing benefits. Subsequently, the authors presented the Cranfield BM process model as a means of overcoming this hurdle. This process model remains one of the most widely used and cited models in the BM research field. It outlines the scope and nature of BM in five stages: (1) identifying and structuring benefits, (2) planning benefits realization, (3) executing the benefits realization plan, (4) evaluating and reviewing the results, and (5) discovering potentials for further benefits. In stage one, the benefits are identified, appropriate measures are derived, and the linkages between an IS/IT investment and the business changes required to realize the anticipated benefits concluded. The subsequent benefits realization's planning covers the allocation of responsibilities and the assessment and planning of the respective changes. In stage three, the appropriate business changes are conducted, along with the preceding IS/IT implementation. After the results' evaluation and review, a comparison of before and after measures is undertaken to assess the degree of achieved benefits realization. In the last stage, further unanticipated benefits are planned and realized, while new experiences are documented for future projects (Ward et al., 1996, pp. 216–217). Tools, such as the benefits dependency network (BDN), have been developed for BM (Peppard, Ward, & Daniel, 2007; Ward & Daniel, 2006). The BDN is used to explicitly link "the overall investment objectives and required benefits (the ends) with the business changes (the ways) necessary to deliver those benefits and the essential IT capabilities (the means) that enable these changes" (Peppard et al., 2007, p. 5).

Despite these advances, BM is comparatively new in practice. It is therefore not surprising that only a few organizations have methodological standards in place to realize the benefits from IS/IT investments. In 2007, the results were presented of other research that built on the UK study. Although the adoption of BM had increased from 12% to 25% in the participating organizations, it was still immature (Ward, De Hertogh, & Viaene, 2007, p. 4). Consequently, a number of scholars decided to investigate the critical BM elements that facilitate its adoption in practice (Päivärinta, Dertz, & Flak, 2007, p. 2). Despite previous research endeavors (Ashurst, Doherty, & Peppard, 2008; Baccarini & Bateup, 2008; Peppard et al., 2007; Remenyi & Sherwood-Smith, 1998; Ward et al., 1996), BM research can still be described as an evolving discipline. In 2009, a literature review (Braun, Ahlemann, & Riempp, 2009, p. 557) identified only 74 research papers as highly relevant for BM (60 journal articles and 14 conference papers). Of these, only nine articles focused on the BM process itself, while the remaining 65 dealt with only one of the phases of the Cranfield BM process model. To date, most research has either been qualitative (Flak, Eikebrokk, & Dertz, 2008; Hellang, Flak, & Päivärinta, 2012;

Peppard et al., 2007; Remenyi & Sherwood-Smith, 1998), or theory analyses and explanations (Gregor, 2006, p. 620).

Some research in the BM field has drawn on the *resource-based view* (RBV) to address the question of how an organization can increase the likelihood that its IS/IT investments' projected benefits will ultimately be realized (Ashurst et al., 2008; Braun, Ahlemann, & Mohan, 2010). The resource-based view (Acedo, Barroso, & Galan, 2006; Barney, 1991; Coff, 1997; Mata, Fuerst, & Barney, 1995; Priem & Butler, 2001) postulates that an organization's internal resources are predictors of the economic situation. It recognizes that an organization's resource position should be considered when strategic options are examined, in order to create a competitive advantage (Wernerfelt, 1984, p. 171): Applying the RBT to the general understanding of how organizations can optimize the benefits of IS investments, one can argue that an IS investment does not as such provide any sustained advantage (Bharadwaj, 2000, p. 170), nor does it have any inherent value (Peppard et al., 2007, p. 2). True value is not created by the mere possession of the IS resource, but rather by an organization's ability to activate and exploit this resource (Ashurst et al., 2008, p. 356). In this context, scholars also refer to "value conversion contingencies" (Davern & Kauffman, 2000, p. 122), "conversion effectiveness" (Weill, 1992, p. 307), and "benefits realization capability" (Ashurst et al., 2008, p. 355), which organizations can use to transform IS resources into actual benefits. Ashurst et al. (2008, p. 355) developed a benefits realization capability model that is enacted through a coherent set of benefits realization competencies. Each competence is underpinned by a closely related suite of benefits realization practices.

By critically examining past research efforts, we conclude that while considerable progress has been made, this has primarily been in the field of developing the BM frameworks, methods, and techniques. The actual adoption and use of such methods, particularly from a user's perspective, have been neglected. In addition, complementary contextual factors (e.g., organization size, industry, and IS/IT project characteristics) and governance mechanisms also only received minor attention. This is a critical issue, as no matter how effective and efficient the BM methodology is, it will be of no use if employees, who are expected to use and apply such practices, do not really embrace and adopt them.

3 Research Methodology

3.1 Analysis Framework

In their BM literature review in 2009, Braun et al. only found nine articles that focused on the whole BM process framework, while the remaining findings were limited to single phases of the Cranfield BM process model. However, since Braun et al. (2009, p. 561) only focused on the BM process and its stages (a technical perspective), its scope is too narrow. In contrast, we illuminate the BM body of knowledge holistically from a set of different perspectives that aim to cover the aspects that are relevant for its adoption. Furthermore, as we take a broader time frame, as well as more outlets into consideration, we have found significantly more publications on benefits management itself, especially in conference proceedings. Therefore, we extend the scope by adding people, control, and organizational perspectives, as well as by explaining the development of our analysis framework below.

Several authors have stressed that adopting BM means conducting organizational change. In his research commentary, Earl (1992, p. 101) emphasizes that realizing benefits requires changing business. In other words, things need to be done differently (Ward et al., 1996, p. 216). This is an insight that is also found in recent literature, as Doherty et al. (2012, p. 4) also stress that organizational change is needed for successful BM. To examine the organizational change from relevant perspectives, we draw on the Leavitt & Bahrami (1988) framework for our analysis. They find that any organizational change must account for four interwoven dimensions: people, business structure, technology, and control mechanisms. We adapt the framework, which is relevant for our research purpose, keeping in mind BM's specific characteristics. In line with Leavitt & Bahrami (1988), we stress that our dimensions are tightly interwoven, and therefore mutually affect the success of BM adoption. Figure 1-1 illustrates our final framework of analysis.

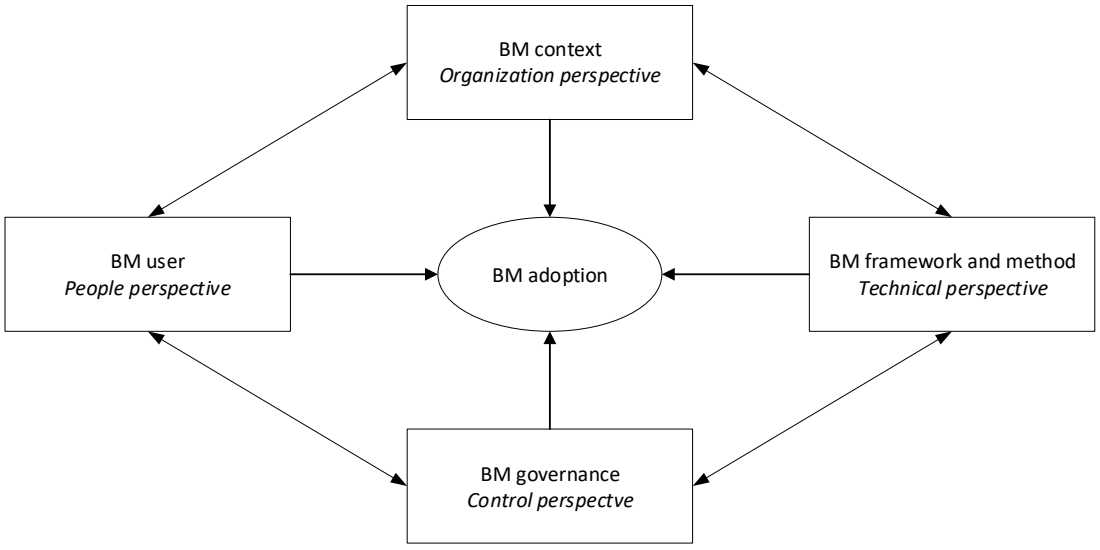

Figure 1-1. Framework of analysis

Technical perspective: As BM aims to realize the benefits of an IS/IT investment by implementing change in the particular business environment, its systematic process steps are highly relevant for the endeavor's success. If the BM methodology and its elements are not coherent, it becomes less effective in achieving the goal of realizing IT/ IS value. Therefore, considering BM adoption from a *technical* perspective, we examine *frameworks and methods* that are expected to enable successful benefits management.

People perspective: A prerequisite for BM adoption is the actual users', i.e. employees, acceptance and proper use of BM. Studies on methodology acceptance have found that users' low acceptance rate decreases its potential benefits. This decrease in benefits is due to management practice not addressing the concerns, fears, desires, wishes, and needs of the employees affected by the methodology, which leads to user resistance, which may in turn hamper its intended execution (Mohan, Ahlemann, & Bhattacherjee, 2012, p. 8). Consequently, when implementing and executing BM, the needs of its users have to be taken into consideration. This leads us to our second dimension – *BM user*.

Control perspective: We propose *BM governance* as another meaningful dimension, which is required to monitor and control BM adoption. The conduction of BM needs to take the roles, responsibilities, and control mechanisms into account as vital parts (Ward & Daniel, 2006, p. 143). As business becomes more involved with an IS/IT project as a central part of benefits realization (Earl, 1992, p. 101; Ward et al., 1996, p. 215), the prior standards and guidelines in most organizations might be violated. BM should be assessed from a control perspective by establishing clear guidelines for better steering, in order to monitor and prevent resistance early on.

Organizational perspective: Successful BM adoption needs to account for the prevalent organizational context that shapes its organizational culture, IS/IT projects, departmental collaboration, etc. Companies exist in a dynamic, competitive environment that essentially influences its capabilities, competencies, and corporate structures (Wade & Hulland, 2004). For an appropriate adoption, BM needs to account for these capabilities and structures by being adapted appropriately. If particular capabilities and supporting structures are not available, successful BM adoption might not occur (Ahlemann, Hesselmann, Braun, & Mohan, 2013, p. 7; Peppard, 2007, p. 339). Thus, we propose that the organization itself, with its environment and culture, influences BM practices strongly. We label this *BM context*.

3.2 Data Collection

As benefits management is a rather young discipline, papers on the topic of interest do not always use the term "benefits management" (related terms, like benefits realization, value management etc. are often used), making the identification of relevant publications difficult. Other common names for this approach are "benefits realization" (Ashurst et al., 2008; Lin, Lin, & Tsao, 2005) or "benefits realization management" (Bradley, 2010; Breese, 2012). Consequently, we had to use a wide range of search keywords and independently asked three IS experts related to benefits management which words they would search for if they wanted to find appropriate articles. We consolidated the results in Table 1-1.

Table 1-1. Keywords for articles relevant to benefits management research

benefits management	managing benefits	manage benefits
benefits realization	realizing benefits	realize benefits
value management	managing value	manage value
value realization	realization value	realize value
benefits generation	generating benefits	generate benefits
benefits creation	creating benefits	create benefits
business benefits	maximizing benefits	maximize benefits
benefits delivery	delivering benefits	deliver benefits
value generation	generating value	generate value
value delivery	delivering value	deliver value

We analyzed the content (title, abstract, key words, and, if possible, the full text) of the publications found in depth. Furthermore, we decided not only to search in the top journals of the basket of eight, but also in lower ranked journals, as well as conferences, to ensure a broad range of outlets. We searched for articles published between 1990 and 2015, to ensure that we identified all relevant articles on BM from its emergence until today. In line with Webster & Watson (2002), we went back and forth, scanning the references of key articles, which we considered highly relevant, to find articles that had not been identified in the first search cycle. Pure practitioner-oriented publications, such as magazine articles or white papers, were omitted from our data collection if they did not fulfil basic scientific standards (e.g., the review process) in terms of validity and reliability.

We examined journals in the EBSCO database. Furthermore, due to the rather young nature of BM, we searched in the following established conference proceedings: *Americas Conference on Information Systems (AMCIS), International Conference on Information Systems (ICIS), Australasian Conference on Information Systems (ACIS), Pacific Asia Conference on*

Information Systems (PACIS), European Conference on Information Systems (ECIS), Internationale Tagung Wirtschaftsinformatik (WI), and Hawaii International Conference on Systems Sciences (HICSS).

Altogether, our search revealed 73 articles, of which we classified 56 as relevant after a detailed content analysis. 17 papers were not regarded relevant for our study, and consequently dropped, as their emphasis was not mainly on the BM concept itself, or they only dealt with BM-related tools or techniques (e.g., IS/IT investment evaluation or benefit calculation). Furthermore, some conference articles were published in a revised and extended version in different journal outlets, so that we only included the published journal version as its revision process ensures a higher quality.

3.3 Data Analysis

In order to conduct a systematic categorization and description of the selected literature, we subjected the 56 papers to a classification framework based on our multidimensional analysis framework, as well as on recommendations by Palvia et al. (2003) and Palvia et al. (2004).We added additional sub-categories (e.g., the theoretical foundations), which were adopted in the process of working with the articles, to ensure that all relevant aspects of our research were covered. We studied the content of each publication to classify the entire pool of papers on the basis of our classification frameworks in terms of the following dimensions: the object of analysis, theoretical foundation, research type, research method, data collection, and data analysis. Figure 1-2 provides a complete overview of the literature review framework and its elements.

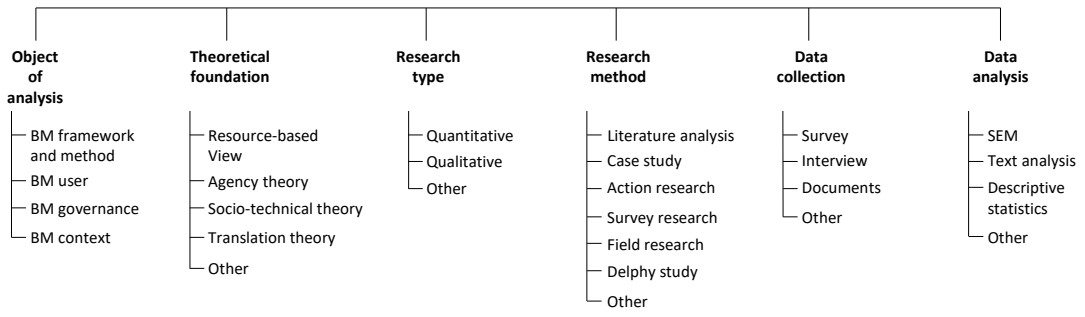

Figure 1-2. Literature review framework

From a content-oriented perspective, we identified the research gaps and future research opportunities. In line with Webster & Watson (2002, p. xvii), we structure our literature review concept-centric by categorizing articles according to their topics instead of their authors.

4 Results

4.1 Descriptive Analysis

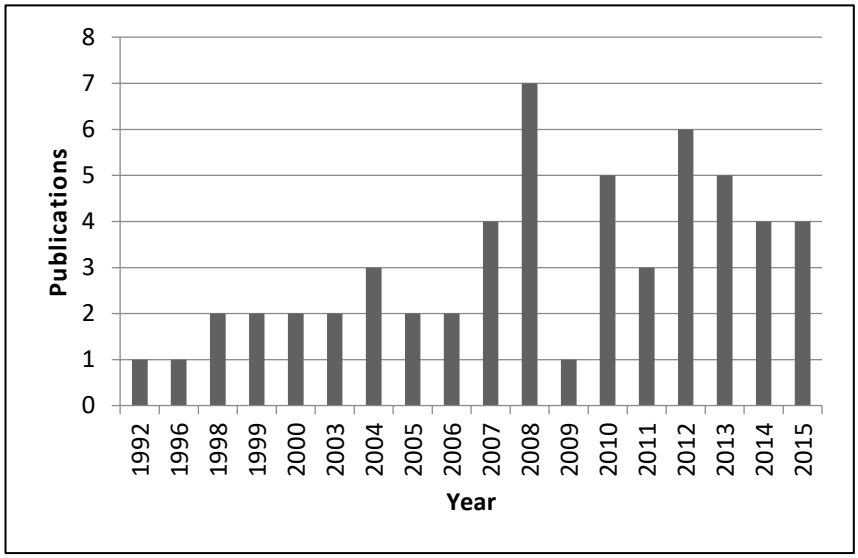

Figure 1-3. Overview of the studies by publication year

Our literature review shows that research on BM started to evolve in the early 1990s, peaked in 2008 with seven publications and reached a low in 2009. After that, the number of publications on BM stabilized, averaging at least three per year, as represented in Figure 1-3.

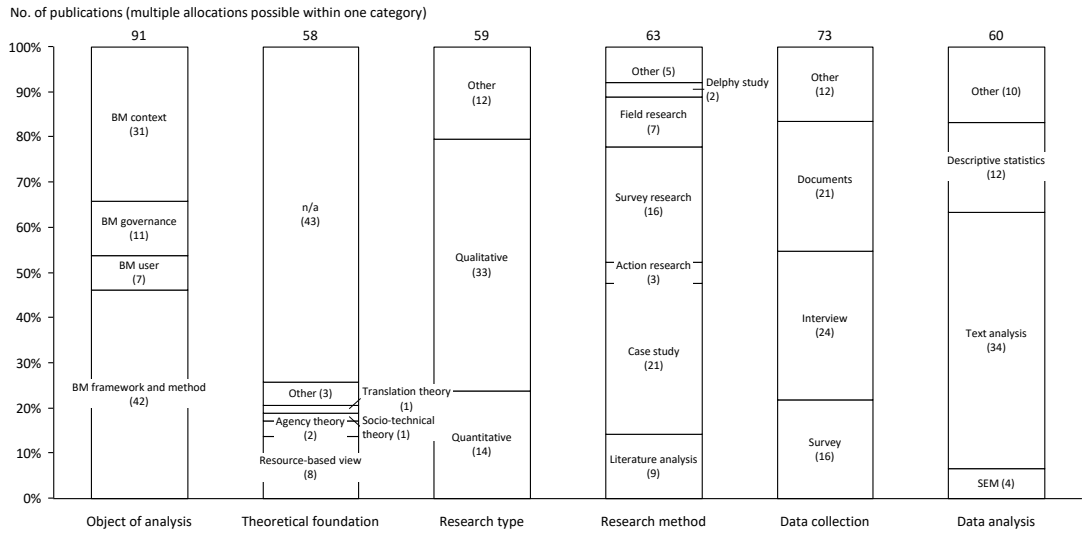

Figure 1-4. Classification of publications

Figure 1-4 represents our descriptive analysis's results after the application of the literature review framework to our pool of papers. In most studies, BM frameworks and methods are the primary unit of analysis, while the BM context is a complementary dimension quite often. BM users are specifically rarely part of any study. To date, most studies lack a theoretical foundation. If they use one, they mostly draw on the RBV. Furthermore, we have found an imbalance in the research types, as qualitative studies have been conducted far more often than quantita-

tive ones. This also explains the high usage of complementary case studies and interview studies. Although surveys are also commonly applied, they are mostly analyzed for descriptive statistics, as inferences based on structural equation modeling (Chin, 1998) are rarely drawn.

4.2 Content Analysis

BM Framework and Method

This dimension comprises all studies that examine BM, with its applications and variations in practice, its particular process stages, success factors, and its impact on the organizational success, from a technical viewpoint. In comparison to the other dimensions, most studies to date focused mainly on BM frameworks and methods.

Although a plethora of studies has applied a case study approach to gain empirical insights, they often mention that the investigated organizations have no formal BM process in place, as the following results show. Bennington & Baccarini (2004) examined the BM process by conducting a field study in Australia, in which they provide empirical insights into local BM practices and find that only a few organizations have implemented a formal BM process. They found the same results when conducting a multi case study within construction projects in Western Australia (Baccarini & Bateup, 2008). Other explorative studies on BM practices in the Norwegian public sector also confirm this finding. Flak et al. (2008, p. 2) comment on the limited empirical validation of the prevalent BM. Therefore, to provide rich empirical descriptions of applied BM practices, Flak et al. examined the data of 48 eGovernment projects. They admit that these practices did not follow a formal BM process either, as, for example, the facilitation of quantitative benefit estimates and benefit-specific roles were hindered (Flak et al., 2008, p. 10). Similar findings were described by Hellang et al. (2013), who compared six practices of BM in the Norwegian public sector. They found three different approaches to benefits realization emerging in practice, all of which have similarities, but have differences in goals (Hellang et al., 2013, p. 105). Others have also found that very few organizations in Germany apply a comprehensive approach to BM (Braun, Mohan, & Ahlemann, 2010, p. 10).

Van Lier & Dohmen (2007) conducted six case studies to investigate the extent to which strategic alignment and BM increase IT outsourcing success, and find a positive relation. However, they stress that none of the case organizations applied a BM approach in a formal sense, instead they applied similar practices which can be characterized as such. Love et al. (2005, p. 960) also find that medium-sized organizations are often more reluctant to change than smaller one, as in the latter it means less change.

In recent years, a number of authors have investigated BM success and its determinants. Doherty et al. (2012) conducted three case studies with the research objective to investigate factors with a positive effect on BM's success. Their research results show that successful BM

requires a reconstitution of traditional IS project management success factors, like a detailed benefits planning approach, ongoing benefits reviews, and organizational change. Furthermore, they find that coherent governance structures and active business leadership are additional factors (Doherty et al., 2012, pp. 8–9). Braun et al. (2010), who applied RBV as a theoretical lens to understand BM success, followed a similar research objective. In 34 interviews, they find that contextual factors play a major role (Braun et al., 2010, p. 7). Mohan et al. (2011, p. 8) applied the results of a survey of 456 respondents to structural equation modeling and find that particular BM-related competencies, such as analysis, planning, implementation, and review affect its success positively. Recently, Serra & Kunc (2015) performed a survey to investigate BM practices in the UK, USA, and Brazil, and identified a quite similar utilization of these practices among the three countries, with positive relation to project management performance and success. Furthermore, they found that BM practices on their own are not yet sufficient for an improved project management performance, as they need to be implemented with other practices from project, portfolio, and program management (Serra & Kunc, 2015, p. 64).

Finally, scholars have developed several, at their core quite similar BM frameworks to the Cranfield BM process model (Bradley, 2010; Remenyi & Sherwood-Smith, 1998; Ward & Daniel, 2006). Schubert & Williams (2013) analyzed the existing BM frameworks from academia and concluded that these only have a limited impact in practice due to their missing detail in benefits criteria catalogues. To address this issue, they developed and proposed a model with stronger focus on specific benefits criteria and their measurement (Schubert & Williams, 2013, p. 594). Ashurst et al. (2008, p. 367) applied the RBV to identify capabilities, competencies, and practices in relation to BM, and found in a case study that only few of these BM practices were adopted in practice already. In a subsequent article, Ashurst & Hodges (2010, p. 233) continued this work by outlining different maturity levels on a scale from 1 (basic) to 4 (advanced) in BM.

BM User

In general, our results show that studies on BM users are still scarce. In 2007, Päivärinta et al. (2007) conducted a Delphi study to identify the facilitating issues of BM adoption in Norwegian municipalities. They found 59 issues, which were further ranked according to their importance. One overarching theme in terms of this concept is the importance of BM methods and the tools that employees find easy to use and learn. Furthermore, they found that being able to see the impact of BM methods on everyday work is also considered relevant (Päivärinta et al., 2007, pp. 5–6). In another article, Päivärinta & Dertz (2008, p. 121) extend the previous

results with a qualitative analysis, providing detailed quotes from the Delphi study, and stressing the relevance of effortless BM methods. Ease of use is therefore considered critical for BM adoption.

One research objective of the survey by Lin et al. (2005) of Taiwanese private organizations, was to investigate the usage of BM methods. They find that BM practices are overall ineffective and seldom used, as only 24.5% of the respondents applied BM. Furthermore, they find a significant correlation between the effective and wide use of BM and the organization's maturity in terms of its strategy, structure, staff, etc. (Lin et al., 2005, p. 56).

BM Governance

In case studies, several authors have found the definition and communication of clear roles and responsibilities an important factor (Freeman & Seddon, 2004; Ward & Elvin, 1999). Ward & Elvin (1999, p. 206) find that the roles between business and IS were unclear/inappropriate throughout the projects in three case studies, which finally led to many problems, such as rework, significant delays, costs, etc. Therefore, they recommend enabling appropriate benefits ownership, which should be communicated to willing stakeholders and which they should accept to ensure that the business and the IS aspects are balanced in all the required interventions (Ward & Elvin, 1999, p. 208). In their book on BM, Ward & Daniel (2006) describe the roles of a benefits and change owner. While the benefits owner is responsible for ensuring a particular benefit's achievement, the change owner has to account for the successful achievement of an identified change. It has also been found that inadequate IT governance practices affect benefits realization negatively (Peppard & Ward, 1999; Ward et al., 1996) .

Ahlemann et al. (2013, p. 7) propose that appropriate governance mechanisms for distributing benefits accountabilities is an important factor. They describe an accountability framework, which includes mechanisms on how to assign accountabilities to the business and the IT stakeholders. Furthermore, they elaborate on incentive systems linked to individual goals based on benefits realization. Finally, they also recommend integrating BM with strategic planning processes in order to enable the necessary portfolio management, alignment with strategic goals, accountability mechanisms, etc.

Doherty et al. (2012, pp. 8–9) find that although well-balanced teams and effective governance structures are regarded as important in prior literature, no recommendations are available on how these should be integrated to leverage their effect. They report that, based on their case studies, these teams require aligned goals and proper governance structures that enable cross-departmental collaboration. Ahlemann et al. (2013, p. 7), who also depict incentive systems as meaningful mechanisms to achieve benefits ownerships and mutual collaboration, make similar recommendations.

BM Context

Several authors have shown that benefits from IS/IT projects can only be realized if an appropriate organizational culture prevails (Dhillon, 2005; Peppard, Lambert, & Edwards, 2000; Peppard & Ward, 1999). In his book, Ashurst (2011) elaborates on an appropriate culture and proposes that an open, learning-oriented climate is important, as it allows failures to be communicated and improvements to be recommended to learn from them. This includes policies and practices for HR, which comprise an appropriate definition of performance, career paths fostering participation in leading change projects, and cross-organizational collaboration (Ashurst, 2011). These aspects are in line with Braun et al. (2010, p. 8), who find that contextual factors, such as business-IS alignment, integration management processes, and top management support, enhance BM success and provide empirical evidence of this. Similarly, other studies have applied SEM, confirming that a tight collaboration between business and IS departments are a prerequisite for successful BM (Mohan et al., 2011, p. 9). Recently, Odusanya et al. (2015) began to investigate benefits management from an IT culture lens. In their ongoing study, they aim to apply several IT culture archetypes that help to particularly exploit IS/IT projects in the post-implementation stage and to better understand the attitudes and believes of respective groups. In terms of organizational capabilities, business IS partnership is seen as having a meaningful impact on BM (Peppard, 2001, p. 268; Peppard et al., 2000, p. 293).

Flak & Grönlund (2008) conducted a survey in the Norwegian government sector by examining 54 projects selected for a BM approach. They find a strong link between the size of municipalities and their willingness to make an effort to conduct BM, implying that larger municipalities are less deterring. Love et al. (2005, p. 961) find that IS/IT investments differ greatly across the industry sectors. While Ward & Daniel (2006) regard BM in the public and private sectors as rather similar, Päivärinta & Dertz (2008, p. 121) see differences in job security and in the organizational culture "which might be more prominent in the public sector." Overall, several authors have recommended that future research should take the industry sector, company size, reach and scope of the IS/IT investment, etc. into consideration regarding BM practices (Breese, 2012; Schwabe & Banninger, 2008; Serra & Kunc, 2015; Williams & Schubert, 2010). In their study, Eckartz et al. (2012, p. 4647) find that practitioners also wish to deploy a BM method in line with their concrete paradigm and context.

Doherty et al. (2012, p. 11) recommend tailoring BM to its specific organizational context. Therefore, it should account for each IS/IT project's uniqueness and, simultaneously, for the dynamic project and investment lifecycle, which can change over time. Several studies, which describe the necessity of adapting benefit taxonomies and methods appropriately to IS/IT projects' characteristics, support this statement (Freeman & Seddon, 2004; Schubert & Williams, 2013). Based on another study, Doherty & Coombs (2013) also propose a shift from the design

and implementation of IT solutions to their effective exploitation, including more support, training, and an improvement of organizational behaviors and practices. Doherty (2014) support this shift with his recent demonstration of the relation between BM's principles and techniques, and socio-technical approaches, which similarly aim for the redesign of organizational practices and behavior.

5 Discussion and Future Research Opportunities

5.1 Discussion

Our descriptive analysis's results allow for a number of inferences. We interpret the increase in publications in recent years as an indication of more interest in the field. The high number of qualitative studies, particularly case studies, also hints at increasing insights from practice. However, many of these case studies were built on project reports in a database, instead of being direct local observations in the field. As most organizations had no formal BM process applied, the results allow no direct inferences regarding the discipline. Consequently, there is still a considerable demand for in-depth empirical studies and BM method evaluation. The comparably low number of quantitative studies limits the generalizability of the findings to date. As mentioned before, sophisticated statistical methods like SEM are rarely applied. On examining the application results of our analysis framework, several shortcomings emerge in each dimension.

From a technical perspective, our findings confirm that most BM studies were conducted in this area. Several studies investigate *BM frameworks and methods* in practice, although no formal BM process was applied in most cases. Research on BM success may be seen as another indicator of the growing maturity of this dimension. Sophisticated research on single process stages occurs quite often, especially in related fields, such as IS evaluation and review disciplines. We also find that available BM methods are regarded as too complex and difficult for practitioners to use (Päivärinta et al., 2007, p. 4). Therefore, detailed guidelines on how to successfully implement benefits management might leverage BM's application in practice.

Guidelines on *BM users*, i.e. how to adopt BM and which aspects to consider, are quite rare in the literature. The only source that comes close are the guidelines on how to reconceptualize traditional IS project factors to allow them to become BM specific. There are no studies that offer insights on how to introduce BM in an organization from a change management perspective. In particular, there is a lack of statistical analyses on an individual level that reveal the causal relations and their strength. However, the results show that the concept of BM usage has slowly evolved during recent years. While particular authors (Päivärinta et al., 2007) have investigated the facilitation of BM adoption issues, the hitherto applied methodological approaches in this area are unable to examine and provide an in-depth explanation of the phenomenon of interest. We admit that the findings of Päivärinta et al. (2007) have advanced the research, but to gain a deeper understanding of the described issues, more sophisticated research methods need to be applied. While Ward & Daniel (2006) promote the BDN from an academic perspective, an empirical validation is still lacking. In addition, several authors have reported on the additional effort that BM requires from specific stakeholders (Päivärinta &

Dertz, 2008, p. 121). Following the Cranfield BM process model, the identification and planning of benefits involving all relevant stakeholders are already linked to additional efforts for the involved stakeholders. Despite this additional effort and the value of the stakeholder involvement mentioned in prior papers (Flak & Solli-Sæther, 2013, p. 2070; Päivärinta et al., 2007, p. 6) , no study has examined the acceptance or resistance of BM from a people perspective. Keeping these issues in mind, we regard this white spot as very important when planning to implement BM in an organization.

Research on *BM governance* has shown some first findings and insights from practice. As it is particularly mentioned in recent publications, we see this as an indicator that it slowly gains the community's interest. Keeping in mind the underlying consequences of BM for its stakeholders (i.e., additional effort through the resign of organizational processes and behavior, increased transparency of stakeholder performance, etc.), it seems necessary to gain insights into and a deep understanding of those governance mechanisms that are necessary to foster BM adoption. As we find in our analysis, general concepts, such as roles, responsibilities, and strategic processes, have already been identified, but lack a deeper specification to be made applicable for practitioners.

Although we list many studies that deal with the *BM context*, it is often investigated as a complementary topic to BM frameworks and methods. Studies that primarily focus on the BM context are rare. In our analysis, we find that several contextual factors are listed, such as top management support, organizational culture, organizational characteristics (sector, size, industry), and, ultimately, IS/IT project characteristics. However, these remain on a merely descriptive level, presenting first explorative findings, but seldom in-depth insights and explanations. In particular, studies that focus on specific IT culture archetypes and their impact on the realization of benefits in organizations are very limited and demand further attention.

5.2 Future Research Opportunities

In terms of future research opportunities on *BM frameworks and methods*, we recommend a stronger focus on applying a formal BM process in the field and collecting its data on site. This might also help to improve existing BM methods, making them more applicable and comprehensible for practitioners. Furthermore, we call for more applied research methods, such as action research, to find reliable data on BM frameworks and methods. In addition, longitudinal studies are another opportunity to study BM's effect on projects' success and, subsequently, on an organization's sustainable competitive advantage.

The BM user dimension requires further attention, and we recommend applying sophisticated qualitative as well as quantitative research methods, such as SEM and in-depth case studies, to develop the discipline in this direction. Furthermore, as the BM user dimension can be compared to research on technological, or even methodological, acceptance (Mohan & Ahlemann,

2013), there are several research opportunities that should be addressed in future studies, such as the switching costs, sunk costs, and non-technological characteristics.

In their study of the adoption and usage of management practices, Mohan & Ahlemann (2011) point out that its *costs* have, to date, not been studied, and depict a potential gap in this research topic. Subsequently, future studies might use the extensive switching costs topology, which Burnham et al. (2003) propose. When investigating BM acceptance on an individual level, a person's desire to use new BM methodologies might be specifically inhibited by four different kinds of switching costs (Burnham et al., 2003, pp. 111–112): a) *economic risk costs* are the costs of accepting uncertainty linked with a potential negative outcome when switching to new practices of which the user has insufficient information; b) *evaluation costs* represent the time and effort costs, which are linked with the search and analysis required to make a decision whether to switch to a new BM methodology; c) *learning costs* are the costs in terms of time and effort when acquiring new skills or know-how in order to use a BM methodology and tools effectively; and d) *personal relationship loss costs* represent the affective losses that emerge due to the broken bonds of identification formed with the people with whom the individual user used to interact when using old methods/processes (e.g., new review processes/roles through increased cross-departmental collaboration and, thereby, changing the way users interact with others).

To acquire a full understanding of the costs' effect and of the switching costs, *sunk costs* should also be investigated. Evidence from numerous empirical studies (for an overview, consult Singer & Singer (1986)) confirms that sunk costs cause a decision-making bias known as the sunk-cost fallacy. This bias reflects the tendency in individuals to invest more future resources in a situation in which a prior investment has been made, compared to a similar situation in which a prior investment has not been made. Consequently, sunk costs might hinder individuals in their adoption and usage of new BM methodologies, as they have already invested learning time and effort in the present methodology.

Furthermore, also the effect of *non-technological characteristics*, which comprise individuals' personal traits, their self-beliefs, habits and emotions, as well was organizational and national culture in the context of BM usage, have rarely been examined in past studies. In the context of understanding the effect of individual users' personal characteristics and traits on accepting a new methodology, such as on their needs – as examined by needs theories in, for example, Maslow's hierarchy of needs (Maslow, Frager, & Fadiman, 1970) and Murray (1938) theory of psychogenic needs, expectancies, age, and gender,. Therefore the investigation of needs and, subsequently, needs theories, might unfold new insights into this phenomenon. According to needs theories, individuals are motivated to use a particular methodology by their individual desire to satisfy certain needs. From the many definitions of basic needs, Ryan & Deci's (2000)

fits the topic of BM methodology acceptance best. As they indicate, "a basic need, whether it be a physiological need or a psychological need, is an energizing state that, if satisfied, conduces toward health and well-being but, if not satisfied, contributes to pathology and ill-being" (Ryan & Deci, 2000). This implies that, if BM fails to satisfy an individual user's basic needs, it might generate strong discomfort, which consequently leads to the user's rejection of the BM methodology.

Future research opportunities in the *BM governance* dimension should opt to gain further understanding of the particular governance mechanisms that are particularly meaningful for facilitating BM's adoption and usage. In this regard, prescriptive recommendations on how to adapt these appropriately for BM are not yet available. For instance, a multi case study might unfold appropriate practices along with their respective impact on BM. Furthermore, we propose to draw on helpful theories on organizational control and governance (Flamholtz, 1983; Ouchi, 1980, 1992) that provide established and validated concepts, which have already been successfully applied in adjacent IS topics like IS project management and IS development (Gregory, Beck, & Keil, 2013; Kirsch, 1996; Liu, Borman, & Gao, 2014). For instance, such theories could help to find practical mechanisms on allocating benefits-related roles and responsibilities or ensuring benefits realization even in the problematic post-implementation stage of an IS/IT project. Furthermore, different control concepts and mechanisms might foster a deeper understanding on how to implement BM in an organization and how to monitor the benefits realization.

As the *BM context* is mostly analyzed on a descriptive layer, we call for further research to examine the contextual factors that provide an understanding about the predeterminants of BM adoption, how they work, and why they do so. Particularly further empirical research on the organizational culture's characteristics and their impact on a successful BM implementation hold much value for future research. In addition, this might help to foster benefits realization in the already mentioned post-implementation stage in conjunction with appropriate governance mechanisms. Finally, as partly implemented in a few studies on BM, structural equation modeling can help reveal the cause-effect chains in the BM context.

We summarized the results of our literature review in Table 1-2 that points out the most relevant future research opportunities.

Table 1-2. Overview of future research opportunities in BM

BM dimension	Implications for future research
BM framework and method	• Include more research on operative guidelines on BM that are applicable for practitioners • Investigate the interdependencies between BM and project, program and portfolio management in organizations • Conduct longitudinal studies on BM's impact regarding IS/IT projects' success and an organization's sustainable competitive advantage • Evaluate existing BM frameworks and methods with field-based research methods like action research for more reliable results
BM user	• Identify determinants of BM acceptance on an individual level • Investigate contextual factors on the organizational level that influence the acceptance of BM • Include specific user-related factors such as switching costs, sunk costs, and non-technological characteristics • Integrate sophisticated theories from technological or even methodological acceptance that include meaningful constructs for individual acceptance • Investigate the role of communication in the process of BM acceptance and usage
BM governance	• Investigate governance mechanisms that are particularly meaningful for facilitating BM's adoption and usage • Identify and evaluate specific mechanisms to ensure that the benefits realization and review in the post-implementation stage are continued • Extend the research results on BM roles and accountabilities with an accountability framework on the project, program, and portfolio level • Integrate concepts from organizational control theory that foster the understanding on how to implement BM in an organization and how to monitor the benefits realization
BM context	• Conduct more explanatory and predictive research on the BM context in general to extend the existing rather descriptive findings • Include factors of the organizational culture in research models and account for specific archetypes with influence on BM • Investigate the relation between the organizational culture and the implementation of BM methods and practices • Pay more attention to further contextual factors (i.e., IS/IT project characteristics, organizational sector, size, and industry, etc.) with influence on the BM adoption

6 Conclusion

To conclude, we propose that all four dimensions and their interdependencies need considerable attention in the light of BM adoption. As mentioned in the beginning of this essay, even the soundest method may be prevented from reaching its potential if it is not aligned with the organizational environment, users' needs, and supporting governance structures. Similarly, from a people perspective, users will only accept and support BM if they have no fears of and suffer disadvantages from its application. Subsequently, as a BM method requires its users to collaborate cross-departmentally, an open-minded organizational culture is needed, as well as complementary governance mechanisms that support such a collaboration with appropriate goals and incentives. Finally, we want to recommend, besides spending time on examining these dimensions in particular, that scholars should seek to understand the interdependencies and mechanisms that have consequences for BM.

From a practitioner's perspective, the contribution of our research is threefold. First, our analysis framework helps practitioners assess their BM implementation from several perspectives, which might unfold new aspects worth considering to leverage its adoption. Second, by providing a summary of BM's state of the art, practitioners can discover and apply further practices that were previously not part of their BM implementation. Third, based on our future research opportunities, practitioners can gain an understanding of the direction in which BM is headed and the areas that need to be tackled in the future, which can become part of their agenda.

Despite the contributions it makes, our research has some limitations. We acknowledge that by only considering publications from 1990 onwards, there may be other papers with important concepts and findings relevant for our research but not examined. As BM is a rather young discipline, practitioners and scholars use different terms and concepts, enabling a proliferation of possible keywords. Consequently, our choice of keywords and search strings might have failed to address "buzz words" and unique BM methodology names. In terms of data extraction, we found that some studies did not describe their methods and samples adequately. The extraction process might therefore have resulted in inaccuracy in the data. Furthermore, our categorization might have suffered, and could not always be conducted very satisfactorily because some articles lacked sufficient details about the design and findings. Owing to this, we might have differed in what we actually extracted. There is therefore a possibility that the extraction process may have resulted in some inaccuracy in the data.

Ultimately, BM adoption and its success remain as complex but important phenomena. Although past research has made initial progress here, we still see a high demand to address further research issues.

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Appendices

Appendix A: Classification of literature

		Object of analysis				Theoretical foundation							Research type			Research method								Data collection			Data analysis		
		BM framework and method	BM user	BM governance	BM context	Resource-based view	Agency theory	Socio-technical theory	Translation theory	Other	n/a	Quantitative	Qualitative	Other	Literature analysis	Case study	Action research	Survey research	Field research	Delphy study	Other	Survey	Interview	Documents	Other	SEM	Text analysis	Descriptive statistics	Other
Ahlemann et al. (2013)		x		x	x	x	x						x						x										
Al-Tameem & Wheeler (2000)		x			x						x			x	x									x				
Ashurst & Hodges (2010)		x			x	x							x				x												
Ashurst (2011)		x		x	x	x										x			x			x	x					
Ashurst et al. (2008)		x		x	x	x							x			x							x	x				
Aslam et al. (2012)					x						x		x			x							x	x				
Baccarini & Bateup (2008)		x									x		x			x							x	x				
Badewi (2015)		x		x							x	x						x				x						
Bennington & Baccharani (2004)		x									x	x	x					x	x			x	x					
Braun et al. (2009)		x									x			x	x									x				x
Braun et al. (2010)		x				x							x						x				x			x		
Braun et al. (2010)		x				x												x				x						
Breese (2012)		x			x						x			x							x			x				
Breese et al. (2015)			x											x	x						x				x				x

		Object of analysis				Theoretical foundation						Research type			Research method								Data collection			Data analysis		
		BM framework and method	BM user	BM governance	BM context	Resource-based view	Agency theory	Socio-technical theory	Translation theory	Other	n/a	Quantitative	Qualitative	Other	Literature analysis	Case study	Action research	Survey research	Field research	Delphy study	Other	Survey	Interview	Documents	Other	SEM	Text analysis	Descriptive statistics	Other
Coombs (2015)		x			x						x		x			x							x	x			x		
Dhillon (2005)		x			x						x		x			x							x	x			x		
Doherty & Coombs (2013)					x						x			x							x								
Doherty (2014)					x			x						x	x														
Doherty et al. (2008)		x									x		x				x												
Doherty et al. (2012)		x		x	x						x		x			x							x	x			x		
Earl (1992)		x			x						x			x							x								
Eckartz et al. (2012)		x			x						x		x						x				x						
Flak & Grönlund (2008)		x	x								x	x				x		x				x							
Flak & Solli-Saether (2013)		x		x	x					x			x			x								x			x		
Flak et al. (2008)		x									x		x		x									x			x		
Freeman & Seddon (2004)					x						x		x			x								x			x		
Haddara & Päivärinta (2011)			x		x						x		x			x							x				x		
Hellang et al. (2012)		x									x		x			x								x			x		
Hellang et al. (2013)		x									x			x							x						x		

		Object of analysis				Theoretical foundation						Research type			Research method								Data collection			Data analysis		
		BM framework and method	BM user	BM governance	BM context	Resource-based view	Agency theory	Socio-technical theory	Translation theory	Other	n/a	Quantitative	Qualitative	Other	Literature analysis	Case study	Action research	Survey research	Field research	Delphy study	Other	Survey	Interview	Documents	Other	SEM	Text analysis	Descriptive statistics	Other
Peppard et al. (2007)		x			x						x		x			x							x	x				
Remenyi & Sherwood-Smith (1998)		x									x			x										x				x
Remenyi et al. (1998)		x									x			x							x							
Schubert & Williams (2013)		x									x		x		x									x				
Schwabe & Banninger (2008)		x	x		x						x		x						x				x					
Serra & Kunc (2015)		x			x						x	x						x				x			x			
Straker & Ashurst (2010)		x			x						x		x			x							x			x		
van Lier & Dohmen (2007)		x					x			x			x			x		x				x				x	x		
Ward & Daniel (2006)		x		x	x						x	x	x			x		x	x			x	x			x	x		
Ward & Elvin (1999)		x		x	x						x		x				x						x	x					
Ward et al. (1996)		x									x	x						x				x						x	
Ward et al. (2007)		x	x								x	x				x		x				x	x					x	x
Williams & Schubert (2010)		x			x						x					x								x				x	

NOT EVERYBODY'S DARLING – INVESTIGATING THE ACCEPTANCE OF BENEFITS MANAGEMENT AND MODERATING ORGANIZATIONAL CHARACTERISTICS[2]

Abstract

Despite organizations' substantial investments in information systems and information technology, the successful realization of appropriate benefits is still often considered a major organizational challenge. Beyond traditional project management dimensions, such as time, cost, and quality, benefits management (BM) emphasizes the need to identify, plan, realize, and review benefits, particularly by means of business changes. While the BM field is still evolving, most studies report on the alarmingly low BM adoption rates in practice. Therefore, we try to understand the determinants of BM acceptance by developing a conceptual model and conducting complementary, exploratory interviews. We find that an individual's role in BM and specific organizational culture characteristics play a major role in influencing BM acceptance's determinants. We contribute to BM research by providing a deeper understanding of BM acceptance and adoption. Practitioners can use these insights to launch more successful change initiatives while implementing BM.

Keywords: benefits management, IS value, methodology acceptance, organizational culture, field study

[2] This essay was co-authored with Frederik Ahlemann and Dennis Böhl. An earlier version of this essay has been published in the proceedings of the Wirtschaftsinformatik conference (WI) 2015:

- Hesselmann, F., Ahlemann, F. & Böhl, D. (2015). Not Everybody's Darling – Investigating the Acceptance of Benefits Management and Moderating Organizational Characteristics. Wirtschaftsinformatik 2015 Proceedings.

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List of Abbreviations

BM	Benefits management
CRM	Customer relationship management
IS	Information system
IT	Information technology
OCP	Organizational culture profile
PMI	Project management institute
TAM	Technology acceptance model
TPB	Theory of planned behavior
TRA	Theory of reasoned action
UTAUT	Unified theory of the acceptance and use of technology

1 Introduction

Motivated by the low success rates of information systems / information technology (IS/IT) projects (El Emam & Koru, 2008; Levinson, 2009; Shpilberg, Berez, Puryear, & Shah, 2007), the effective management of such projects and, consequently, their contribution to business value, has been a vital field in IS research for several years. While early research concentrated on investigating IS success (Delone, 2003; DeLone & McLean, 1992), and executing and finishing projects with the ex-ante specified cost, time, and scope constraints, the evaluation of IS/IT investments regarding delivering the anticipated IS/IT value was neglected. Practitioners, as well as scholars, have realized the need for management concepts that function parallel to project management, but aim to deliver project benefits (not just the immediate project results) that will support long-term organizational goals. For example, IT project management has facilitated the task of selecting, implementing, and deploying a customer relationship management (CRM) system in the form of a project. However, it is still comparatively difficult to realize the associated benefits, such as increasing sales and customer satisfaction, with this technology. In this context, benefits management (BM) has evolved as an independent research discipline that investigates the successful realization of IT project benefits since the 1990s (Ward, Taylor, & Bond, 1996). BM emphasizes organizational change as an important prerequisite for realizing benefits from IS/IT investments, and is defined as "organizing and managing IS/IT initiatives so that potential benefits arising from the use of IT are actually realized" (Ward et al., 1996, p. 214). Further, BM differs from other management approaches, like project portfolio management, by specifically emphasizing IS/IT investments' benefits and their realization, as well as by undertaking appropriate business changes besides technical implementations (Ward, De Hertogh, & Viaene, 2007, p. 2). Furthermore, common frameworks, like the standards that the PMI (Project Management Institute, 2008) proposes, do not address the ongoing exploitation of IS/IT investments' benefits after a project closure.

When analyzing studies and reports published since 1996, which consistently consider BM a very effective management approach, it seems surprising that scholars generally still find very low BM adoption rates in organizations (e.g., Braun, Ahlemann, & Mohan, 2010; Breese, Jenner, Serra, & Thorp, 2015; Coombs, Doherty, & Neaga, 2013; Lin, Pervan, & Lin, 2004; Päivärinta & Dertz, 2008). Unfortunately, research – particularly explanations from BM theory – has to date provided little help in understanding these low adoption rates. This might be because the available empirical studies only focus on BM's methodological aspects, such as the processes, methods, and tools (Flak & Solli-Sæther, 2013; Päivärinta & Dertz, 2008). Very few detailed insights, reports, and explanations attempt to study other BM perspectives. Consequently, elements that might enable the diffusion and adoption of BM practices, such as employee needs and concerns, are mostly underrepresented in research (Lin & Pervan, 2003; Päivärinta & Dertz, 2008).

A systematic literature review of benefits management's state-of-the-art (Hesselmann & Mohan, 2014, p. 11) reveals that, on an individual level, BM acceptance has very seldom been part of any study. However, a prerequisite for BM adoption is the actual users', i.e. employees', acceptance and proper use of BM. Studies on methodology acceptance have found that low user acceptance rates decrease a methodology's potential benefits, as the unaddressed concerns, fears, and needs of employees whom the methodology affects, give rise to user resistance and, subsequently, hinder its intended execution (Mohan, Ahlemann, & Bhattacherjee, 2012, p. 8). However, due to the additional reporting and organizational change efforts that BM requires from its affected stakeholders, achieving a sufficient degree of acceptance is rather demanding and needs further investigation (Flak & Solli-Sæther, 2013, p. 2069). Consequently, when implementing and executing BM, the needs of its users have to be thoroughly taken into consideration.

To solve this problem, we aim at gaining a deeper understanding of the individual drivers of benefits management acceptance and its associated effects. Specifically, our research questions are:

(RQ1) What are the determinants of benefits management acceptance?

(RQ2) Which contextual factors influence the predictive power of these determinants?

The latter question is of particular importance, as BM is implemented in diverse organizations characterized by different cultures, norms, and standards. Understanding such contextual differences and addressing them appropriately is important for theory development and knowledge creation (Johns, 2006, p. 396). To answer our research questions, we derive propositions and develop a conceptual model, which we refine through an exploratory field study, as a basis for future empirical work.

The essay is organized as follows: Section 2 provides an overview of our theoretical foundation that forms the basis of BM and acceptance research. Afterwards, we delineate the research process by describing our data collection and analysis, as well as the development of our conceptual model's constructs and propositions in order to explain BM acceptance. We conclude with our main contributions and a discussion of the key results, limitations, and suggestions for further research.

2 Foundations

2.1 Benefits Management

BM research started to evolve in the mid-1990s, when Ward et al. (1996, p. 214) conducted an empirical study on industry practices in the UK, in which they defined BM as "the process of organizing and managing such that potential benefits arising from the use of IT are actually realized." According to this initial study, many organizations were dissatisfied with the available benefits-realizing methods. Subsequently, the authors presented the Cranfield BM process model as a means of overcoming this issue (Figure 2-1). The process model remains one of the most widely used and cited models in the BM research field. It outlines the scope and nature of BM in five stages: In stage one, the benefits are identified, appropriate measures are derived, and the linkages between an IS/IT investment and the business changes required to realize the anticipated benefits are concluded. The subsequent benefits realization's planning covers the allocation of responsibilities and the assessment and planning of the respective changes. In stage three, the appropriate business changes are undertaken, along with the preceding IS/IT implementation. After the results' evaluation and review, a comparison of the before and the after measures is undertaken to assess the degree of achieved benefits realization. In the last stage, further unanticipated benefits are planned and realized, while new experiences are documented for future projects (Ward et al., 1996, pp. 216–217).

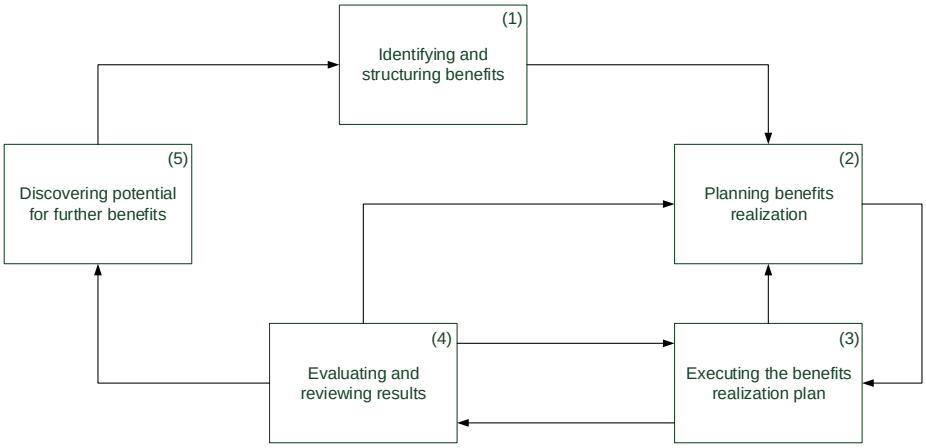

Figure 2-1. Cranfield BM process model (Ward et al., 1996, p. 216)

As depicted in these five stages, BM has implications for an organization's stakeholders, as it requires the implementation of new processes, responsibilities, and methods (Ward & Daniel, 2006). In particular, it is about dealing with omissions and failures, like bad investment decisions, unfavorable project implementations, and inefficient business process executions. Therefore, stakeholders not only have to change their behavior (Martinsons & Chong, 1999, p. 130), but their performance and behavior also need to be transparent to allow the detection of failures and inefficiencies. Also, the identification and planning of benefits are already linked to required additional stakeholders efforts (Flak & Solli-Sæther, 2013; Päivärinta,

Dertz, & Flak, 2007). Consequently, most affected stakeholders show some degree of BM resistance if the change in business processes and work practices is not properly managed (Peppard & Rowland, 1995). However, without such acceptance, there is no change in the behavior of BM users, which subsequently jeopardizes the implementation of the required BM processes and methods. Therefore, investigating BM is highly relevant when trying to understand when and how users accept it.

By critically examining past research efforts, we conclude that while considerable progress has been made, this has primarily been in the field of developing BM frameworks, methods, and techniques. The actual adoption and use of such methods have, particularly from a user's perspective, been neglected. In addition, complementary contextual factors (e.g., organization size, organizational culture, and industry) have also only received minor attention. This is a critical issue, as no matter how effective and efficient the BM methodology is, it has no value if employees, who are expected to use and apply such practices, do not truly embrace and adopt it. We aim to solve this issue by investigating the determinants and associated factors of BM acceptance.

2.2 Prior Research on Acceptance

Acceptance research has long been one of the core interests of IS researchers. Over this time, several theoretical lenses have been used and refined to study this phenomenon. While early attempts mainly focused on the acceptance of technical artifacts (like software), more recent research also investigates the acceptance of management methods and processes like project management and benefits management (Mohan et al., 2012, p. 4921; Riemenschneider, Hardgrave, & Davis, 2002, p. 1143).

The theory of reasoned action (TRA), which explains general behavior and does not focus on technology acceptance, is one of the first theories in this context. TRA states that behavioral intention drives human behavior, and this intention depends on the attitude towards this behavior and on subjective norms (Fishbein & Ajzen, 1975, p. 511). The theory of planned behavior (TPB), which is an extension of TRA, consists of similar constructs, but adds control belief measures and perceived behavioral control measures as an influence on behavioral intention and on behavior itself (Ajzen, 1991, p. 182). In detail, the TPB's three determinants of behavioral intention can be described as follows: The attitude construct describes the extent to which a person has a favorable or unfavorable evaluation of the behavior of interest in terms of the behavior's outcomes. The subjective norm represents the belief in whether the peers of and people important to this person would approve or disapprove of the behavior. Finally, perceived behavioral control reflects a person's beliefs regarding the necessary resources and opportunities required to perform the behavior of interest (Ajzen, 1991, pp. 181–185).

The technology acceptance model (TAM) has been especially adopted by the IS domain (Davis, Bagozzi, & Warshaw, 1989). Just like TRA, it includes the elements behavior and behavioral intention. In this case, the factors influencing the behavioral intention to use a system are the perceived usefulness and the perceived ease of use. TAM's great success has led to much research in which it is applied. One of its most prominent extensions is the unified theory of the acceptance and use of technology (UTAUT), which combines and integrates the TRA, TPB, and TAM assumptions, as well as those of six other acceptance theories (Venkatesh, Morris, Davis, & Davis, 2003, pp. 428–432). The perceived ease of use and perceived usefulness are the most used constructs of these theories. Furthermore, the terms acceptance and adoption are often used synonymously, which we also do.

For the purpose of this study ,we use the TPB as the underlying theoretical foundation for the BM acceptance model for the following two reasons: a) as arguably the mostly researched theory on individual beliefs and behavior, the TPB provides a solid foundation to build on our BM acceptance model (Armitage & Conner, 2001, p. 489); b) as a sociological model, the TPB does not inherit a technology adoption perspective, while other well-researched theories (e.g., TAM and UTAUT) focus mainly on technological artifacts' characteristics, such as perceived usefulness, perceived ease of use, perceived complexity, and adaptability (Chan & Thong, 2009, p. 804). Instead, BM represents a rather conceptual artifact (i.e. methodologies and techniques) and is more likely to be associated with a higher variety of uses than technological artifacts are (Orlikowski, 2000, p. 409).

3 Research Methodology

As research on BM adoption is still in its infancy, we decided on an exploratory approach that complements our systematic literature review. We aimed to triangulate the emerging a priori model with insights from practice. Drawing on the recommendations of Klein and Myers (1999, p. 72), we initiated a field study, based on interviews with BM practitioners, to identify in-depth insights and empirical patterns that would explain BM acceptance.

We conducted the field study by means of telephonic interviews. Since benefits management's maturity was expected to be low in most organizations, we opted for theoretical sampling rather than a random sample (Eisenhardt & Graebner, 2007, p. 27). The interview guide, together with the a priori BM acceptance model (based on prior acceptance research), was distributed to the participants beforehand. Generally, two interviewers conducted the interviews, which lasted between 60 and 90 minutes. The field study consisted of 11 interviews with practitioners: males and females, aged 31-50, and senior executives with more than ten years' professional experience. We addressed representatives of different organizational levels, who ranged from a CIO, a PPM to consultants (for more details, see Appendix A and B).

Each interview began by asking the interviewees about their understanding of benefits management. We continued with partly exploratory questions, which dealt with topics that affected the groups of BM stakeholders and their initial reaction to BM implementation. Furthermore, we questioned our interviewees regarding important factors for BM acceptance and the relevant supporting functions. In the second part of the interview, we evaluated our a priori model's constructs to gain further insights into their proposed effects. The interviews were recorded and transcribed by following a denaturalized approach, in which accuracy focuses on the meanings and perceptions of the interviewees, rather than on accents or involuntary vocalization (Oliver, Serovich, & Mason, 2005, p. 1277).

All the material we gathered through the interviews was collected in a database, which two of the authors analyzed. We used the interviews to cross-check the theory-driven model development and refined our model. Section 4 provides excerpts from the interviews, as well as descriptions of the constructs and the proposed relationships.

4 Conceptual Development

Having described previous research on BM and acceptance research as a theoretical foundation, we next focus on the derivation of propositions to explain the determinants and moderating variables of BM acceptance. In doing so, we develop individual and organizational level variables.

Intention to Use Benefits Management

The purpose of our model is to explain and predict the intention to use BM, which is a key dependent variable. Ajzen (1991, p. 181) defines intention to use as a construct that captures "the motivational factors that influence a behavior" and, therefore, is an indication of how much effort they plan to exert in order to exhibit the intended behavior. In line with this definition, we define the intention to use BM as the degree to which an individual is willing to execute BM-related tasks.

P1: Intention to use BM is positively associated with the BM use behavior.

Benefits Management Use Behavior

Our model's other dependent variable is the actual usage behavior. The separation between the intention as a predictor of a behavior and the actual behavior is common in acceptance research and also well established in the IS and its reference disciplines (Ajzen, 1991; Sheppard, Hartwick, & Warshaw, 1988). Therefore, benefits management use behavior is defined as the actual use of the BM methodology.

4.1 Determinants of BM Acceptance

The determinants of BM acceptance represent variables with a direct or indirect effect on BM acceptance.

Performance Expectancy

Performance expectancy is defined as the degree to which individuals believe using BM will help them improve their job performance (efficiency and effectiveness). By selecting this definition, we draw on Compeau et al.'s (Compeau, Higgins, & Huff, 1999, p. 147) definition, thus taking outcome expectations regarding job-related performance (effectiveness and efficiency) into account. Job-related performance expectations are proposed as influencing the intention to use BM, because perceived job achievement has been identified as major determining factor for an employee's job satisfaction (Herzberg, 1968). Furthermore, as BM is associated with its users' positive and negative performance expectancy, our construct's definition emphasizes the "net" performance after comparing its benefits and costs. For example, stakeholders in an affected business department have to make an additional effort due to the required business process changes, but might profit from a subsequent performance increase.

On the other hand, other stakeholders, such as IT controllers, initially benefit from BM, as they receive better information through the affected departments' additional reports. In our exploratory field study, we found further evidence that the initial performance expectations of BM vary. One interviewee, a business value consultant, maintained: "One factor that leads to negative expectations of BM is that people wonder if they have to do additional work." An IT consultant supported this idea: "I have often observed reactions like, 'Oh, now we have to add a new chapter to our project appraisal documents, we need new data and we will have to do more work'." On the other hand, a CIO interviewee emphasized: "Someone who is located in the controlling will benefit from BM." Therefore, we conclude:

P2: Performance expectancy is positively associated with the intention to use BM.

Outcome Expectancy

Outcome expectancy is defined as the degree to which an individual believes that using BM will result in desirable rewards. Potential rewards can be monetary advantages, changes in image and status, promotions, praise, etc. The construct can be compared to the personal outcome expectations construct that Compeau et al. (Compeau et al., 1999, p. 148) use and which is defined as "expectations of change on image or status or to expectations of rewards, such as promotions, raises, or praise." Our field study revealed complementary notions in practice. A CIO interviewee in the retail industry related: "When BM is linked to the success factors of an employee, or, in other words, when there is a direct link between the job-related […] goals, there will be a positive effect." In addition, a management member summarized: "BM can be an opportunity for heads of departments, or division managers, or persons who have initiated a project, because they are able to claim the success themselves." Consequently, we propose:

P3: Outcome expectancy is positively associated with the intention to use BM.

Social Norm

Social norm is defined as the degree to which an individual perceives social pressure to perform BM. This construct represents the social factor in the model and is derived from Ajzen (1991, p. 188), who defines subjective norm as "the perceived social pressure to perform or not to perform the behavior." Such social pressure is believed to have two sources: on the one hand supervisors or formal authorities who have formal power to reward or punish individuals (French & Raven, 1959) and, thus, influence their intention to use BM. On the other hand, peer employees are unable to command another peer to use BM, but they can induce this person to use the methodological approach by exerting injunctive or descriptive norms. Injunctive norms inform us about what is approved or disapproved, whereas descriptive norms inform us about what is typically done. The extent to which these norms are focal, will determine the

impact of an individual's behavior (Cialdini & Goldstein, 2004). A strategy consultant confirmed this influence that supervisors and peers have in his interview: "On the one hand, directive orders are important, because they create the necessary obligation. But the opinions of colleagues are also important. If diverse people say that they won't participate in benefits management, this would have a great influence." Consequently, we propose:

P4: Social norm is positively associated with intention to use BM.

Facilitating Conditions

Facilitating conditions is defined as the degree to which individuals perceive that they have the necessary resources and that there is organizational support to facilitate the BM activities. This construct is derived from the facilitating conditions construct that Triandis (1980) uses and from the TPB's perceived behavioral control construct (Ajzen, 1991). It is important, because, regardless of an individual's motivation, the performance of a behavior is also dependent on the availability of the required resources (Ajzen, 1991, p. 182). As mentioned before, BM is perceived as a rather complex methodological approach. We believe that without proper support in terms of training and helpful contacts, individuals' motivation to accept and use BM decreases, because they cannot sufficiently control their behavior's performance. Specific support may include comprehensive BM training, sufficient time for practice, as well as available assistance with BM-related questions. Consistent with the TPB (Ajzen, 1991, pp. 183–184; Taylor & Todd, 1995, p. 140), we propose that facilitating conditions do not only influence the intention to use BM, but also have a direct effect on the BM use behavior. An interviewed strategy consultant stressed: "BM does not work without coaching. Somebody has to be available to answer questions and help." Furthermore, an IT consultant added: "Basically, I can confirm that the availability of support [such as methods or tools] fosters the acceptance of BM." Concluding, we summarize:

P5a: Facilitating conditions are positively associated with the intention to use BM.

P5b: Facilitating conditions are positively associated with the BM use behavior.

Efficiency Pressure

Efficiency pressure is an organizational-level construct and defined as the degree to which an organization is constrained to increase its efficiency and cut costs. Our investigation revealed that firms with the highest degree of cost pressure and efficiency needs are typically those that drive BM adoption. The original sources of such efficiency pressure can be manifold, ranging from an increasing market competition to internal cost-cutting programs. In the former situation, drawing on the x-efficiency hypothesis (Leibenstein, 1966, p. 408), organizations operating in a market with low competition tend to allow for a particular degree of "slack" and inefficiencies, which increases costs. However, when the market concentration increases,

firms attempt to realize efficiency gains in order to stay competitive (Melville, Kraemer, & Gurbaxani, 2004, p. 305). In another situation, firms with a rather stable market position tend to meet the strategic decision to achieve competitive advantage by becoming a low-cost producer in the industry and, consequently, strive to increase efficiency (Porter, 1980). As BM is believed to be an approach that helps organizations choose the "right" projects while implementing them more efficiently (Ahlemann, Hesselmann, Braun, & Mohan, 2013; Ward et al., 2007), we propose that organizations with a particular degree of efficiency pressure influence their employees' intention to use BM. This is in line with our exploratory field study's findings and an interviewed CIO in the retail industry likewise concluded: "The main driver of the [BM] introduction was the need for a more efficient use of the organizational resources." Consequently, we propose:

P6: Efficiency pressure is positively associated with the intention to use BM.

4.2 Moderator Variables of BM Acceptance

The moderator variables of BM acceptance influence particular determinants' effects on BM acceptance.

BM Role

BM role is a multidimensional, categorical construct that comprises an individual's job category and organizational level. Both dimensions determine an individual's tasks and responsibilities in terms of BM and, in turn, influence an individual's BM expectancies and perceptions. Job category is defined as an organizational role and position, which individuals, who perform similar activities and are confronted with similar information processing requirements, undertake (Rice & Shook, 1990, p. 197). Organizational level refers to the different tasks and responsibilities on the institutional, managerial, and operational levels. While higher-level individuals (e.g., top management) are concerned with information-consuming activities, such as planning, strategy, and goal decisions, lower-level individuals (e.g., lower management, project team members) deal with operational and technical matters that create information (Daft & Lengel, 1986, pp. 555–556). The realization of benefits is often linked to business changes and complementary information creation (e.g., analysis and documentation activities) (Ward & Daniel, 2006), which the project team and the affected departments' employees mostly perform. Subsequently, such individuals are believed to have a lower performance expectancy when confronted with BM. On the other hand, the top management profits from better investment decisions and projects' benefits realization, which increase their performance from an organizational perspective. As a CIO and a business value consultant emphasized: "Generally, the call for BM comes from the management" and "if employees have company shares, they will be more interested in the organizational performance." In addition, the higher degree of transparency, which is a consequence of the additional reporting regarding

measuring the benefits realization and its success at the project's conclusion, might fan lower-level individuals' fears regarding a performance comparison and its consequences. We found supportive empirical evidence for this in our field study with a project portfolio manager mentioning: "If we are at the bottom of the hierarchy, we will have fears with respect to our existence." Thus, we summarize:

> *P7a: BM role is positively associated with performance expectancy such that the effect will be stronger for higher-level individuals with information consuming activities.*
>
> *P7b: BM role is positively associated with outcome expectancy such that the effect will be stronger for higher-level individuals with information consuming activities.*

Organizational Culture

Organizational culture is a multidimensional construct that refers to a system of shared meaning, or assumptions, that organizational members hold and which distinguish the organization from other organizations (Robbins & Judge, 2012, p. 546; Schein, 1996, p. 229). We propose that some of the organizational culture's characteristics have a positive influence on the manifestation of the different constructs in our model. Therefore, we label the sum of these dimensions BM culture and explain them as follows: O'Reilly III et al.'s (1991, p. 494) organizational culture profile (OCP) is a typology that has received much research attention. One of their culture dimensions is outcome orientation, which describes cultures that are especially achievement orientated and result orientated (O'Reilly III et al., 1991, p. 502). Outcome-orientated cultures apply success-related accountabilities and reward employees that achieved good outcomes (Bauer & Erdogan, 2009, p. 210). This is in line with prior findings on BM, which propose applying benefit-related accountabilities and incentives when implementing BM in an organization (Ahlemann et al., 2013, p. 7). For instance, important project stakeholders' personal goals could be linked to the successful realization of the anticipated benefits. Team orientation is another OCP framework dimension believed to be important for the acceptance of BM. Previous research on BM has revealed that BM's success depends on cross-departmental cooperation and a fluent knowledge exchange between business and IT (Ahlemann et al., 2013, p. 8; Mohan, Ahlemann, & Braun, 2011, p. 8). This is quite similar to team-orientated cultures, which focus on collaboration (O'Reilly III et al., 1991, p. 502) and organize work in teams (Robbins & Judge, 2012, p. 547). In particular, this could be achieved by regular joints meetings between business and IT, mutual goal setting, and co-location, which allows a higher social cohesion between business and IT. The third dimension of BM culture is called learning orientation. This describes a culture in which mistakes are not punished, but are seen as an opportunity to learn and improve. Becoming a learning organization requires management to demonstrate that failures should be acknowledged and not feared (Robbins & Judge, 2012, p. 629), which is also recommended in terms of BM (Ahlemann et al., 2013, p.

6; Ashurst, Doherty, & Peppard, 2008, p. 360). For example, the measurement of benefits is usually a challenging endeavor requiring the development of appropriate competencies by applying the lessons learned, openly discussing mistakes, and continually improving the benefits metrics. Furthermore, in our exploratory field study, an interviewed IT portfolio manager argued: "If a culture is characterized by blaming and punishing people for mistakes, then people will already struggle with the benefits estimations at the beginning of a project. […] Learning processes will not work in such a culture, because a learning process requires allowing mistakes, but using them to improve." Likewise, a business value consultant stated: "I often see resistance if the transparency resulting from BM may have consequences for the staff." Therefore, we propose that a BM culture has a positive influence on performance and outcome expectancy, as such an organizational culture's characteristics increase both constructs' influence on the intention to use BM. In this regards, we conclude:

> *P8a: The positive influence of performance expectancy on intention to use BM is moderated by the organizational culture such that the effect will be stronger in organizations with a benefits-oriented organizational culture.*
>
> *P8b: The positive influence of outcome expectancy on intention to use BM is moderated by the organizational culture such that the effect will be stronger in organizations with a benefits-oriented organizational culture.*

We developed the following conceptual model of BM acceptance as a synthesis of the introduced constructs and propositions (Figure 2-2).

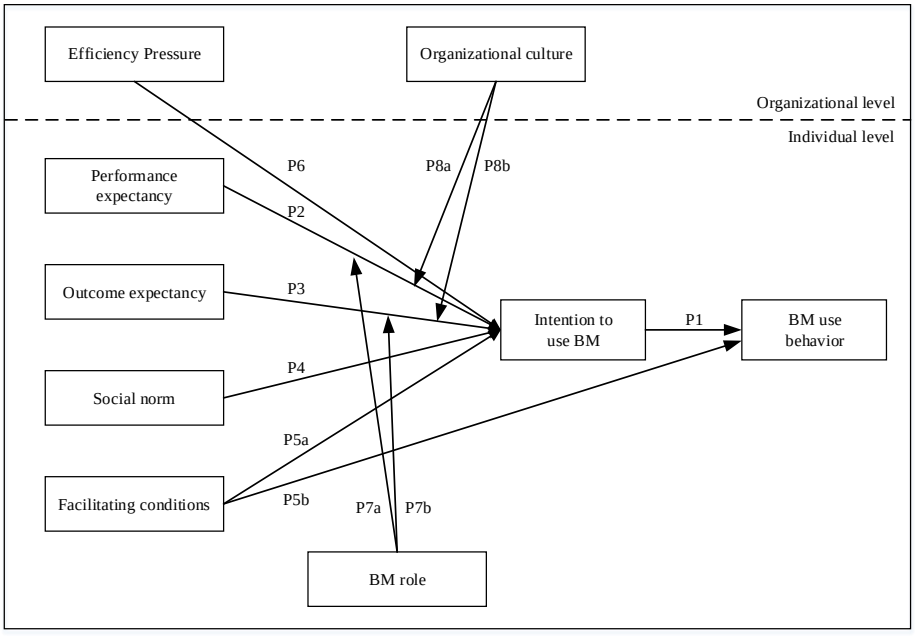

Figure 2-2. Benefits management acceptance model

5 Conclusion and Outlook

In this study, we set out to develop a conceptual model that aims to explain the acceptance of benefits management on the individual level. While previous literature provided a priori constructs for our research model, we identified efficiency pressure and BM role as novel and important constructs for an individual's BM acceptance. Furthermore, on an organizational level, particular characteristics of the organizational culture are proposed to moderate the effects of performance and outcome expectancy.

Our results contribute to theory and to practice alike by advancing research on benefits management and, specifically, on acceptance theories, as we shed light on two novel determinants (i.e., efficiency pressure and BM role) that influence BM acceptance. The BM role construct shows that different users in an organization perceive BM differently, which is an extension of classic theoretical explanations of acceptance behavior. Furthermore, we contribute rather novel ideas by specifically focusing on the moderating effects, as scholars are increasingly seeking to understand such complex relationships (Henseler & Fassott, 2010, p. 715). Consequently, our study is one of the first to identify the methodology-specific role and the organizational culture as moderating effects in an acceptance model.

From a practical point of view, we expect our model to provide a beneficial understanding of the acceptance of benefits management in organizations. Based on this understanding, appropriate guidelines can be derived to increase an organization's employees BM acceptance, which we regard a necessary condition for IS/IT projects' success. For instance, our model highlights the importance of contextual factors when implementing BM in an organization. In particular, organizations within a highly competitive environment, or with current cost-cutting programs have a high chance of successfully implementing a BM approach and in turn increasing their organization's efficiency. In addition, for a successful BM adoption, organizations should opt to develop an organizational culture that acknowledges and supports cross-departmental cooperation, outcome orientation, and learning from failure. Finally, we found that not all employees consider BM positively at first glance. Particularly lower-level employees in affected business departments and project team members have fears regarding their expected performance and outcome, which should be addressed appropriately in change strategies when implementing BM.

Before we conclude with recommendations for future research, we have to acknowledge our study's limitations. First, while we derived the conceptual model from theoretical accounts and complementary, exploratory interviews, a rigorous validation (i.e. in terms of a quantitative study) is still lacking. Second, although we conducted 11 interviews, further data collection might corroborate our findings, particularly if deliberately gathered from different BM roles in the organization. Furthermore, we suggest that the validation of our model should be

undertaken in additional organizations to further investigate the effect of different organizational cultural attributes and efficiency pressures on BM acceptance.

In terms of future search opportunities, we aim to encourage other researchers to continue our research efforts. In doing so, we would suggest to apply quantitative methods to validate the conceptual model, as such methods are most suitable to assess the effect size and confirm the proposed propositions. Therefore, a large sample of employees from different organizational positions would be most appropriate. Based on specific control variables, these employees could be divided into separate groups and their differences and similarities analyzed. Accordingly, the next step would be to define a measurement model, develop a suitable survey instrument, collect empirical data, and carry out the data analysis by means of structural equation modeling (Chin, 1998; Straub, 1989).

BM adoption is a complex and elusive, yet important, phenomenon. Although it helps organizations realize benefits from IS/IT investments, its users confront it with diverse perceptions. Thus, with our findings, we take a first step towards a comprehensive understanding of individual BM acceptance and to ultimately help increase BM implementations in practice.

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Appendices

Appendix A: List of Expert Interviews

Interview no.	Role of Interviewee	Industry
1	Business Value Consultant	IT Software
2	CIO	Retail Market
3	Strategy Consultant	IT Software
4	Solution Architect	IT Software
5	Managing Architect Enterprise Strategy	IT Software
6	Business Value Consultant	IT Services
7	Business Value Consultant	IT Consulting
8	Director Business Technology Management	Business Consulting
9	CEO	Business Consulting
10	Project Portfolio Manager	Chemical
11	Solution Architect	IT Consulting

Appendix B: Interview Guide

#	Interview Question
Demographic Data	
1-1	What is your current job position?
1-2	What are your tasks / projects there?
1-3	For how many years are you working in the company?
1-4	How would you rank your experience in benefits management?
Explorative Questions	
2-1	Which factors do you regard as important when realizing benefits?
2-2	Which factors motivated your company to implement benefits management?
2-3	Who was the driving force and why?
2-4	Which groups were affected by benefits management?
2-5	How did these groups react? Did they have any fears, expectations, feelings, etc.?
2-6	Did their opinion regarding benefits management change over time?
2-7	Which factors do you regard as important for an individual's acceptance of benefits management?
Performance Expectancy	
3-1	In how far are benefits management activities related to your "normal" job activities?
3-2	How difficult is it to fulfill the requirements related to benefits management?
3-3	In how far does benefits management help you to do your job better?
3-4	How would you rate the relevance of the performance expectancy for benefits management acceptance on a Likert-scale from 1 to 5?
Outcome Expectancy	
4-1	In how far does benefits management provide you with better career opportunities?
4-2	How would you rate the relevance of the outcome expectancy for benefits management acceptance on a Likert-scale from 1 to 5?
Social Norm	
5-1	How do your colleagues regard benefits management?
5-2	In how far is there any social pressure to conduct benefits management?
5-3	How would you rate the relevance of the social norm for benefits management acceptance on a Likert-scale from 1 to 5?
Facilitating Conditions	
6-1	In how far are supporting offers (training, support, material, etc.) regarding benefits management provided by your company?
6-2	In how far do you feel well prepared regarding benefits management?

#	**Interview Question**
6-3	How would you rate the relevance of facilitating conditions for benefits management acceptance on a Likert-scale from 1 to 5?
BM Role	
7-1	In how far does an employee's role influence benefits management acceptance?
7-2	Which differences on different management levels exist regarding benefits management acceptance?
Organizational culture	
8-1	Which characteristics of an organizational culture support the acceptance of benefits management?
8-2	How would you rate the relevance of the organizational culture for benefits management acceptance on a Likert-scale from 1 to 5?

HOW TO EFFECTIVELY REALIZE VALUE FROM IS/IT INVESTMENTS – A QUANTITATIVE-EMPIRICAL STUDY ON THE IMPACTS OF BENEFITS MANAGEMENT PRACTICES

Abstract

Despite organizations' substantial investments in strategic information systems and information technology (IS/IT), successful realization of benefits from such investments has consistently been reported as a major organizational challenge. Scholars have proposed dedicated benefits management (BM) practices to improve benefits realization success. This essay examines whether these BM practices can be considered a viable approach to achieve the anticipated benefits. Drawing on our findings from a prior explorative study on BM practices and the BM literature, we develop and test a conceptual model explaining how value generation through BM is realized using data collected from 456 individuals involved in benefit-oriented projects and analyzed by means of partial least squares (PLS). Collectively, the results have important theoretical and practical implications, since they provide quantitative evidence of how strategic IS/IT projects should be managed to successfully realize benefits. Specifically, organizations should acknowledge the particular relevance of benefits planning and benefits review practices. Furthermore, the findings suggest that BM practices are facilitated by business process knowledge on the part of the project team and intense business-IT communication. Finally, we also find that incentive management as a moderator negatively influences benefits review practices' impacts on benefits realization success.

Keywords: benefits management, IT value realization, incentives, project value, top management support

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List of Abbreviations

AVE Average variance extracted

BITC Business-IT communication

BM Benefits management

BME Benefits measurement

BP Benefits planning

BPK Business process knowledge

BR Benefits review

BRS Benefits realization success

CAP Cronbach's alpha

CMB Common method bias

CR Composite reliability

IM Incentive management

IS Information system

IT Information technology

LV Latent variable

PLS Partial least squares

SD Standard deviation

SEM Structural equation modeling

TPS Top management support

VIF Variance inflation factor

1 Introduction

Benefits arising from investments in strategic information systems and information technology (IS/IT) have been the subject of much debate for many years (Doherty, Ashurst, & Peppard, 2012; Kohli & Grover, 2008; Nielsen & Persson, 2017; Paré, Bourdeau, Marsan, Nach, & Shuraida, 2008; Shang & Seddon, 2000). Many organizations invest heavily in IS/IT to realize benefits after a successful IS/IT implementation. These benefits range from achieving business objectives and preventing performance deterioration, to enabling organizations to achieve competitive advantage by exploiting business opportunities or creating new organizational competencies (Peppard, Ward, & Daniel, 2007, p. 5). Overall, such benefits represent a significant element of IS/IT investments' value (Brynjolfsson & Hitt, 2000, p. 24).

Unfortunately, in practice, few organizations achieve the intended benefits. For instance, Barker & Frolick (2003, pp. 48–49) report on a major soft drink bottler's ERP endeavor that was planned to realize benefits of integrated communication. However, although being 'successfully' implemented (in terms of a running system), the ERP system was considered a hindrance to the business. In another case, a technically (on time, within budget, and to specification) successfully implemented customer relationship system was not seen as beneficial to the organization (Peppard et al., 2007, p. 2). The examples suggest that delivering IS/IT on time, within budget, and at the required quality is not enough to guarantee benefits realization.

Because of the complex socio-technical nature of IS/IT investments, academics as well as practitioners have soon recognized that delivering IS/IT value is a multifaceted task that must consider: a) the interests, needs, and abilities of the various stakeholders, b) the dynamic technical and social environment, and c) how their interactions create risks and reveal opportunities which, when overlooked, can severely hinder IS/IT investments from delivering their full potential. This revelation has led to the evolvement of an independent research discipline investigating the successful realization of benefits from IS/IT projects (Ward, Taylor, & Bond, 1996), referred to as benefits management (BM) and defined as "the process of organizing and managing such that potential benefits arising from the use of IT are actually realized" (Ward et al., 1996, p. 214).

The basic assumption in the BM literature is that benefits can be realized if they are managed appropriately (Remenyi & Sherwood-Smith, 1998, p. 83). Several scholars have made suggestions how effective benefits managements should be designed. For instance, Ward et al. (1996) suggest a comprehensive framework for a benefits management process, which they have further elaborated over time (Ward & Daniel, 2006). Other research describes and analyzes the difficulties of realizing benefits from IS/IT investments, but generally on a high abstraction level, without any reference to specific BM practices or benefits management (e.g., Earl, 1992; Joshi, 1991a; M.L. Markus & Benjamin, 1996; Zmud & Cox, 1979a).

Most research on BM is of qualitative nature, conducted in the form of case and field studies – for instance, (Ashurst, Doherty, & Peppard, 2008; Dupont & Eskerod, 2016; Marnewick, 2016; Peppard et al., 2007) – and has helped to identify BM practices. While this research contains helpful suggestions on how to implement benefits management generally, it says little about whether and how such BM practices actually help realize IS/IT projects' benefits. Thus, we view a thorough analysis of BM practices' effects on IS/IT project benefits realization as a resulting and necessary next step. Furthermore, the lack of quantitative confirmatory evidence of BM practices is a key issue, as without this evidence, theorists may make false assumptions regarding the relevance of single BM practices and the conditions under which they yield a certain outcome. Similarly, practitioners lack guidance on how to prioritize their BM-related initiatives and how to allocate scarce resources to BM practices. We also need to understand contextual factors that support or hinder successful benefits realization. BM is not an isolated process, but is embedded in a complex social environment that influences the BM process. Consequently, it makes sense to also include some of the most empirically validated theoretical concepts, such as incentive management, top management support, business-IT alignment, and communication (Li, 1997, p. 24; Wang, Shih, Jiang, & Klein, 2008, p. 1611). Hence, we intend to answer the following research questions:

(RQ1) To what extent do different BM practices enable the realization of IS/IT project benefits?

(RQ2) Which contextual factors influence the effectiveness of these BM practices?

We approach the two research questions as follows: First, we conducted an explorative, qualitative field study and used it together with theoretical foundations from literature to shape constructs and to develop a conceptual model that explains the benefits realization process and its success. Based on this conceptual model, we conducted a confirmative quantitative empirical study to test our model. We collected data from 456 individuals involved in benefits-oriented projects to test whether our construct definitions turned out to be useful to model the antecedents of BM success and to test the validity of our propositions.

The remainder of this essay is organized as follows: In Section 2, we summarize the current state of benefits management-related research, while in Section 3 we describe the conceptual foundations and development of our research model. Section 4 contains a comprehensive discussion of our research method. In Section 5, we present the findings our quantitative empirical work, while Section 6 discusses the findings and compares them with the existing body of knowledge. In Section 7 we summarize, discuss limitations, and provide an outlook for potential future research.

2 Prior Research and Conceptual Foundations

Generating business benefits and value from IS/IT investments represents one of the major research streams in the IS discipline (Dehning, Richardson, Urbaczewski, & Wells, 2004; Kohli & Grover, 2008), which commonly refers to IS/IT's organizational impacts, such as productivity increases, cost reductions, or enabling the achievement of competitive advantage (Devaraj & Kohli, 2003, p. 275; Peppard et al., 2007, p. 5). Existing studies have found that IS/IT does not create its anticipated benefits in isolation (Melville, Kraemer, & Gurbaxani, 2004, p. 294; Soh & Markus, 1995, pp. 38–39; Wade & Hulland, 2004, pp. 129–130); instead, it requires complementary organizational factors, such as people and management, routines, business processes, knowledge assets, etc., which play an *enabling* role in generating IS/IT business value. In conjunction with these factors, an organization has the necessary foundation to realize benefits by adapting or redesigning its business processes to the new IS/IT functionalities (Melville et al., 2004, p. 294; Wade & Hulland, 2004, pp. 129–130). These benefits can manifest on different levels, such as the individual, company, industry, or economy level (Davern & Kauffman, 2000, p. 127; Devaraj & Kohli, 2003, p. 275; Kohli & Grover, 2008, p. 26). Furthermore, the alignment and partnering between IT and business has also been found to be an important success factor in delivering benefits from IS/IT (Devaraj & Kohli, 2003, p. 285; Peppard & Ward, 1999, p. 55).

However, most conceptualizations of IS/IT business benefits and value generally remain very abstract (Earl, 1992; Joshi, 1991b; M. Lynne Markus & Benjamin, 1996; Zmud & Cox, 1979b). Thus, to date, the IS/IT business value creation process remains a "grey box" (Schryen, 2013, p. 159) that demands further attention on how, why, and when IS/IT investments deliver business value. Based on this motivation, benefits management has emerged as an adjacent research topic dealing with a comprehensive approach of realizing business benefits from IS/IT investments. In this context, scholars have introduced concepts like "value conversion contingency" (Davern & Kauffman, 2000, p. 122), "conversion effectiveness" (Weill, 1992, p. 307), and "benefits realization capability" (Ashurst et al., 2008, p. 355) to denote organizations' ability to transform IS/IT resources into actual benefits.

Research on BM began in the mid-1990s with an empirical study on industry practices in the UK (Ward et al., 1996, p. 214) that found that many organizations were unsatisfied with the available methods for realizing benefits. To address this issue, Ward et al. (1996) presented the Cranfield BM process model, one of the most widely used and cited models as a means to overcoming this hurdle. This model identifies five activities as key for benefits management: (1) identification and structuring of benefits, (2) planning benefits realization, (3) executing the benefits realization plan, (4) evaluating and reviewing results, and (5) analysis of potential for further benefits. The basic idea behind the model is the lifecycle perspective of the benefits

of IS/IT investments: benefits must be identified, evaluated (ex ante), realized, and evaluated again (ex post). Furthermore, scholars have focused on developing helpful tools for benefits identification and analysis, such as the benefits dependency network (BDN) (Coombs, 2015; Peppard et al., 2007).

In an attempt to explain the impacts of benefits, management scholars have drawn on well-established theories. For instance, Doherty (2014) investigated the relationship between benefits management and socio-technical theory to identify commonalities and differences, with the former having a higher recognition of modern organizations' dynamic context and a far more explicit focus on delivering organizational value. Furthermore, to address the question how an organization can increase the likelihood of its projected benefits from IS/IT investments being ultimately realized, Ashurst et al. (2008) have used the resource-based view (RBV) to develop a conceptual model of benefits realization capability. This capability is disseminated further into four distinct competences: benefits planning competence, benefits delivery competence, benefits review competence, and benefits exploitation competence (Ashurst et al., 2008, p. 355).

Further research has concentrated on more specific aspects of BM, such as critical issues to facilitate the adoption of BM practices in municipalities (Paivarinta, Dertz, & Flak, 2007), BM at the program and portfolio levels (Breese, 2012), the process of BM itself (Bennington & Baccarini, 2004), or factors that will ensure the realization of benefits from IS/IT (Dhillon, 2005). Also, narrow application contexts of BM have been investigated, such as the relationship between BM and strategic alignment on IT outsourcing's success (Lier & Dohmen, 2007), the BM practices in the construction industry (Love & Irani, 2004), and identifying a viable BM framework for IT service management implementations (Mcloughlin, Scheepers, & Wijesinghe, 2014).

While they constantly emphasize the need for benefits management, none of these previous studies explore the implicit assumption that benefits management practices do indeed lead to better benefits realization and to what extent this happens.

3 Conceptual Model

Research on the success of BM is still in its infancy, and little is known about the influence of single BM practices on a firm's ability to exploit IS/IT resources. In developing our conceptual model, we conducted an explorative, qualitative field study to get an in-depth understanding of how organizations realize their benefits from IS/IT investments. This allowed us to refine our notion of benefits management gained from the literature and served as a basis for the subsequent model development, since there are very few research studies in this field (Benbasat, Goldstein, & Mead, 1987; Carroll & Swatman, 2000; Cepeda & Martin, 2005; Dooley, 2002; Eisenhardt, 1989b; Lyytinen, 2009). Drawing on recommendations by Klein and Myers (1999, p. 72), we initiated a field study based on interviews to look for empirical patterns that helped us to understand not only the process of realizing benefits for a single project, but rather how BM could be successfully applied throughout an organization. We carried out guided interviews (Yin, 2002, p. 89) with BM stakeholders at the top management, middle management, and project management levels. The sample included 36 interviewees from 29 organizations operating in the following industries: IT services, insurance, energy, finance, logistics, and the retail market. Based on the findings from the field study and existing literature, we will now develop our conceptual model, identifying and examining the roles that various BM practices and contextual factors play in successful realization of benefits.

3.1 Benefits Management Practices

One fruitful way to add granularity to the complex concept of BM is to decompose it into a number of constituent practices, each of which is underpinned by the skills, knowledge, and experience of organizational employees (Ashurst et al., 2008, p. 355). Wenger et al. (2002, p. 38) consider practices to be "a set of socially defined ways of doing things in a specific domain: a set of common approaches and shared standards that create a basis for action, problem solving, performance and accountability". In our research model, we investigate which BM practices account for the ability to realize benefits from IS/IT investments, comprising the measurement, planning, and review of benefits.

Benefits Measurement (BME)

Benefits measurement is the ability to develop suitable measures (both financial and nonfinancial) for each identified benefit (Ward et al., 1996, p. 216). Measurable variables must be developed to allow stakeholders to understand the full scope of the investment and its impact on the realization of expected benefits (Remenyi, Money, & Bannister, 2007, p. 39). Measures enable the assessment of benefits at any given time (Farbey, Land, & Targett, 1992, p. 110). The measurement of benefits represents a particular practice; as a process manager from the logistics industry noted: "Intangible benefits factors are important but difficult to measure. For

these factors, we developed our own benefits estimation tool." The need for a particular approach to measure qualitative benefits was also confirmed by a project manager in the insurance sector: "In the run-up to the project, we evaluate the quantitative benefits such as revenues and costs by the means of a costs-benefits analysis. Qualitative benefits are measured using a scoring matrix with weights for their probability of occurrence and their value proposition."

Benefits Planning (BP)

Organizations need to plan for the required business changes and to document these in a benefits realization plan. This plan is a counterpart of the IS/IT implementation project plan and accounts for all the activities, interdependencies, timing, and responsibilities involved in managing the changes and realizing the benefits (Ward et al., 1996, p. 216). The mere application of IT does not lead to benefits; benefits realization must be carefully planned and managed (Lin & Pervan, 2003, p. 15; M. Lynne Markus, 2004, p. 6). It is also important that the organization identifies all relevant stakeholders affected by the business changes (Jurison, 1996, p. 265), and develops an action plan to enable or encourage the required involvement. This was confirmed by a project manager in the insurance industry: "We need a scheduled benefits realization plan in order to enhance project control and to focus on benefits realization." We define benefits planning as the ability to effectively identify the parties responsible for each identified benefit and to explicitly state, based on mutual consensus, the means by which the responsible parties are to achieve the benefits, i.e. plan which resources are to be used when, in what ways, and by whom. For instance, when implementing a knowledge management portal in a large consultancy, the project sponsor becomes responsible for ensuring that the system is widely accepted and used by the consultants or otherwise for facilitating the system's adoption process by using incentives.

Benefits Review (BR)

Benefits review is the ability to effectively assess a project's success in terms of the current state of benefits at any point in the project lifecycle, and the delivered benefits (Ashurst et al., 2008, p. 356). IT project benefits will only be realized if they are systematically measured (Jurison, 1996). Thus, organizations need to effectively and ongoingly monitor and evaluate their project results (Ashurst et al., 2008, p. 356), to ensure that benefits are being realized as planned and to further improve benefits realization in the long term (Remenyi & Sherwood-Smith, 1999, p. 28). Regular review status reports help one to detect shortfalls and problems early on, and enable the individuals responsible to initiate corrective actions in time so as to ensure the realization of identified benefits. A project manager in the insurance industry arrives at the same conclusion: "Continual monitoring of the costs-benefits analysis during a project and even after project closure is a critical success factor for benefits management."

Since an organization's ability to review benefits is strongly based on its ability to measure benefits, we posit a positive relationship between BME and BR. Therefore, we conclude:

H1: BME will be positively associated with BR.

Benefits Realization Success (BRS)

The central dependent variable in our model is benefits realization success (BRS), which is defined as the extent to which benefits are actually realized. We conceptualize benefits in monetary terms and further assume that they can be tangible and intangible (Irani & Love, 2002, p. 78). BRS is the ultimate aim of the benefits management approach. We posit that BP, BR, and BME positively influence BRS. BR alone will impact on BRS, because the mere controlling of benefits realization will motivate relevant stakeholders to engage in benefits realization. This is also confirmed by practitioners; for instance a head of internal consulting reported: "We have good benefits realization since we have very competent revision, risk management, and controlling units that steer the project and help us to realize the benefits." BP and BME have positive impacts because the ability to appropriately plan and measure benefits will help an organization to exploit IT/IS investments in the desired way. Thus, we conclude:

H2a: BP will be positively associated with BRS.

H2b: BR will be positively associated with BRS.

H2c: BME will be positively associated with BRS.

3.2 Business-IT Alignment

As a result of the complex socio-technical nature of IS/IT projects, BM practices are underpinned by the skills, knowledge, and experience of a diverse set of individuals involved in a project, who have different interests, working practices, and roles. Uniting these various groups of individuals involved in a project in pursuit of the shared goal of maximizing benefits realization is therefore critical to the discipline of benefits management. In practice, though, these relationships often tend to be poor, because there is a significant gap between the IS/IT department and the rest of the organization (Ward & Peppard, 1996, p. 38). It has been argued that this lack of alignment between IS/IT and business is the reason why a) wrong or unrealistic benefits are identified or not identified at all, b) the operationalization of measures is incorrectly specified, c) activities and resources are not properly planned, and d) the required organizational change is not achieved (Henderson & Venkatraman, 1993). Thus, we propose that the following two specific constructs are expected to nurture cooperation and understanding among the business (project sponsor) and IT (the project team) and are expected to lead to the development of effective BM practices.

Business-IT Communication (BITC)

Business-IT communication is defined as the formal and informal sharing of information between the project team and the project sponsor. Information exchange and communication are key constructs in many empirical studies of exchange relationships (Deepen, Goldsby, Knemeyer, & Wallenburg, 2008, p. 79); these studies come to the similar conclusion that complete, open, and frequent exchange of operating and strategic information is essential to hold alliances together (Bowersox, Daugherty, Droge, Rogers, & Wardlow, 1989).

Following the notion of Tushman and Katz (1980, p. 1072), we propose that the IS/IT department as well as the business department can each be considered as a specialized subunit that has evolved to deal with relatively homogeneous tasks: The IS/IT department focuses on the technical work environment, while the business department focuses on the functional work environment. As a result, each subunit develops its own locally defined languages and orientations that gradually evolve from interactions among the subunit's task demands. Considering that, in an IS/IT project, both subunits are affected, effective interaction in terms of communication between the IS/IT department and the business department becomes essential in the planning and executing of the various BM practices. This is also widely accepted in business-IT alignment literature, in which communication, as ongoing knowledge sharing, is an integral part (Luftman, 2003, p. 10). The relevance of business-IT communication is also confirmed by the participants of our exploratory pre-study. A process manager in the logistics sector noted: "In the past, our requirements management practices were not efficient in defining the project scope. Communication problems are the chief cause of project failure." A project manager in the insurance industry summarized: "Communication between different project stakeholders is a critical success factor for benefits management."

We propose that BITC positively affects benefits measurement, planning, and review. Increased communication between IT and business will help to establish consensus regarding the intended benefits, thus allowing for the development of an adequate measurement system. Similarly, comprehensive meetings and discussions when planning and reviewing benefits before and after a project should involve different perspectives, taking into account business and IT. Thus, we conclude:

H3a: BITC will be positively associated with BME.

H3b: BITC will be positively associated with BP.

H3c: BITC will be positively associated with BR.

Business Process Knowledge (BPK)

Business process knowledge draws on the argument that IS/IT investments neither provide any sustained advantage per se (Bharadwaj, 2000, p. 170), nor have any inherent value (Peppard, Lambert, & Edwards, 2000, p. 293). Organizations and their managers thus need to understand that, even though IS/IT may have been an enabler within successful projects, the business benefits are ultimately derived from "understanding the business and committing it to change" (Earl, 1992, p. 101) and that IT impacts organizational performance via intermediate business processes (Dehning & Richardson, 2002, p. 9). However, in order to be able to change the business processes in such a way that they ultimately lead to benefits, one must first gather business process knowledge. This was confirmed by many of the informants in our pre-study. A process manager in the logistics sector explained: "Business process knowledge is a critical success factor for benefits management and especially for benefits evaluation. It enhances the quality of benefits estimation. Organizations should support the IT employees' specialization in customer processes." This is confirmed by a consultant: "Benefits cannot be evaluated without knowledge about the customer's business processes."

BITC is expected to positively impact BPK since high quality, breadth, and depth of information exchange between the IT project team and the business facilitates a better understanding of the activities on the part of the parties involved. Benefit measures will likely be derived from business process improvements, which is why a thorough understanding of the business will increase an organization's ability to develop such measures. Furthermore, deeper business process knowledge will enable an organization to better understand where and how benefits are to be realized, thus leading to a stronger benefits planning ability. Thus, we formulate our fourth hypothesis as follows:

H4a: BITC will be positively associated with BPK.

H4b: BPK will be positively associated with BME.

H4c: BPK will be positively associated with BP.

3.3 The Moderating Influence of Incentives and Top Management Support

In our endeavor to understand additional contextual factors that support or hinder successful benefits realization, we included incentive management and top management support as some of the most empirically validated theoretical concepts (Li, 1997, p. 24; Wang et al., 2008, p. 1611). In doing so, we specifically focus on moderating effects, as researchers increasingly seek to understand complex relationships, in addition to direct effects' examination (J. Henseler & Fassott, 2010, p. 715). Given the importance of moderator variables, it is therefore not surprising that Frazier et al. (2004, p. 116) state that the identification of such variables

reflects a field of inquiry's maturity and sophistication and is at the heart of theory in social science. We will now specify the roles of key moderators and will provide theoretical justifications for our hypotheses.

Incentive Management (IM)

Incentive management is defined as the extent to which individuals involved in the realization of benefits are rewarded with incentives upon success. IM aligns the often-divergent goals and interests of all the parties involved by means of tangible or intangible incentives. Principal-agent theory explains inefficiency in relationships between individuals and implies that this is caused by a fundamental misalignment between the goals and interests of the individuals involved in a project (Eisenhardt, 1989a, p. 71). Based on principal-agent theory, we infer that incentives would increase the effectiveness of BM practices by motivating the individuals involved to share information and resources as well as work together towards the shared goal of maximizing the realization of project benefits. This was clearly confirmed by our interview partners. A project portfolio manager stated: "An important part of the corporate culture is to incentivize different project stakeholder for benefits management." Thus, we propose that the presence of incentives will improve the effectiveness of the BM practices and will amplify the effects of BP, BR, and BME on BRS. We conclude:

> *H5a: BP's influence on BRS will be moderated by IM, such that the effect will be stronger in projects with a high degree of IM.*
>
> *H5b: BR's influence on BRS will be moderated by IM, such that the effect will be stronger in projects with a high degree of IM.*
>
> *H5c: BME's influence on BRS will be moderated by IM, such that the effect will be stronger in projects with a high degree of IM.*

Top Management Support (TMS)

Top management support is defined as the extent to which top management keeps itself informed of a project's activity and allocates valuable organizational resources to a project. Lucas (1981, p. 99) also implies that top management's ability to ensure sufficient resources for projects and its role as change agents are important elements of their support. Top management helps in creating supportive climate for IS initiatives. In our view, top management functions as a "back seat driver", supporting the IT project manager's initiatives, mentioning BM practices' importance to line management, providing a general business direction, and ensuring that operational managers take responsibility for delivering the anticipated benefits (Jarvenpaa & Ives, 1991, p. 208). Our informants support this view. A head of operations confirmed: "For benefits management success, top management commitment and support is imperative." TMS is thus expected to elevate the effects of BM practices, owing to its ability to motivate the

individuals involved to share knowledge and resources and to commit themselves to the goal at hand. Thus, we propose that TMS will increase the effects of BP, BR, and BME on BRS:

H6a: BP's influence on BRS will be moderated by TMS, such that the effect will be stronger in projects with a high degree of TMS.

H6b: BR's influence on BRS will be moderated by TMS, such that the effect will be stronger in projects with a high degree of TMS.

H6c: BME's influence on BRS will be moderated by TMS, such that the effect will be stronger in projects with a high degree of TMS.

4 Methodology

As a first step in our confirmative quantitative study, we took the conceptual model and transformed it into a structural model explaining BM success. To enable construct measurement, we also developed various measurement models. We will now describe the process of survey instrument development and data collection in some detail.

4.1 Survey Instrument Development

The entire development process, which lead to the final survey instrument, was based on recommendations by Straub, Boudreau, and Gefen (2004). We conducted an extensive BM literature review as a basis for our constructs. Instrument refinement was then undertaken with an expert panel and included six semi-structured, face-to-face interviews with three academics and three practitioners. We asked the panel to provide definitions for our constructs as well as to suggest three items with which to measure them. The insights from these personal interviews helped us to identify additional items as well as to rephrase existing ones (D. W. Straub, 1989, p. 156). A high extent of content validity was established by selecting and developing the initial set of items from the literature and the expert interviews.

We then conducted a Q-sorting exercise (Moore & Benbasat, 1991, p. 193; Petter, Straub, & Rai, 2007, pp. 639–640). First, the card-sorting instrument was administered to a panel of doctoral students. These students were asked to indicate which construct was most closely associated with each measurement item. If such matching was indeterminable, content validity was further stressed by encouraging the participants to note instances of ambiguity or a lack of clarity in the measurement items' wording by commenting on the proposed constructs and measures. Bearing in mind the comments as well as the card-sorting results of this first round, we further refined some items' wording and presented the renewed item battery to eight additional participants (two academics and six practitioners). In a second validation process, we eliminated certain items to further improve content validity.

The next stage of the instrument development was to conduct a web-based pre-test with 31 participants with IS/IT project experience as a convenience sample. Once again, content validity was stressed by encouraging the participants to comment (in a pre-test comment field) on the instrument quality and comprehensiveness. The pre-test was open for three weeks, at the end of which we analyzed the 122 comments. We then made improvements to the instrument and further refined the wording to ensure clarity.

Finally, all the items were embedded in survey questions, using a 7-point Likert-type scale (anchored by 1 = *strongly disagree* and 7 = *strongly agree*). Throughout the entire instrument development process, the three scholars discussed each issue and formulated improvements

and additions. This triangulation of scholars and methods (Denzin, 2006, p. 471) provides stronger substantiation of constructs and propositions (Eisenhardt, 1989b, p. 538).

Furthermore, we also included several control variables in the measurement instrument. These apply to the individual and to the project. At the individual level, we accounted for role in the project (e.g., project manager, project sponsor, portfolio manager, controller, etc.), age and gender, skills in project and benefits management (from none to expert), as well as experience in project and benefits management (in years). At the project level, we asked for the particular project type (IS/IT project, organizational project, R&D project, etc.).

4.2 Data Collection

Data was collected via an online survey for a period of seven months. For the study, we chose a random sample of participants from Germany, Austria, and Switzerland, utilizing databases of professionals (e.g., XING, CompetenceSite), with keyword search (e.g., benefits management, IT project management, portfolio management, etc.). This approach supported the elicitation of a wide representation by industry and company size. A personalized URL of the online survey was sent to every individual thus identified. Further to utilizing databases, we also approached randomly selected organizations by sending them an open invitation to participate. Personalized survey URLs were administered to 2,147 individuals, of which 456 participants completed the survey, representing a 21.2% response rate. Among the nonrespondents, 359 individuals started but did not complete the survey, while 1,379 did not click on the URL once. We addressed the issue of nonresponse bias prior to the study by following the recommendations by (Rogelberg & Stanton, 2007, p. 197): a) Physical design of the survey was evaluated to ensure that it is pleasing to the eye, easy to read, uncluttered, and structured. b) Potential participants' interest was aroused and the importance of the survey explained by providing participants with general information on the study motivation in the invitation email. c) Personal incentives were promised to further motivate participants. We also communicated that participants would receive a report of the final results.

After the survey, we contacted all individuals who were invited but did not participate in the survey, via email, to inquire as to the reasons for their nonparticipation. Overall, we received feedback from 111 nonparticipants, while the most-cited reasons for nonparticipation were: 1) lack of time (52.25%), 2) the individual is wrong contact person for the survey (18.92%), 3) the questionnaire is too long (9%), 4) no interest (9%), 5) overlooking the invitation email (2.7%), 6) data confidentiality concerns (1.8%), and 7) the questionnaire is too complex (0.9%).

Since all survey questions needed for our BM success model were mandatory, we did not have to exclude any cases owing to missing or incomplete responses. The majority of data records

refer to IS/IT projects (62.02%), followed by organizational projects (17.58%). The IT industry (21.17%) is most widely represented, followed by consulting (10.15%), the service sector (9.29%), and logistics (8.43%). The participants were mainly project managers (50.93%), followed by project team members on the business side (7.23%).

5 Data Analysis & Results

We applied the software SmartPLS (version 2.0 M3) to test the research model and assess the psychometric properties of the scales. This was based on partial least squares (PLS), owing to our study's exploratory nature (Fornell & Bookstein, 1982, p. 449). Furthermore, we used PLS because, compared to covariance-based approaches, it is beneficial when the research model is relatively complex, with a large numbers of indicators and multiple moderation effects, and the data is not normally distributed (Chin, Marcolin, & Newsted, 2003, p. 197; Fornell & Bookstein, 1982, p. 449). Additionally, it has been argued that our chosen approach to analyze the moderation effects is far more difficult to implement in a covariance-based SEM context than in PLS path modeling (Jörg Henseler & Chin, 2010, pp. 104–105). A bootstrapping procedure with 1,000 resamples was used to assess the statistical significance of the parameter. We followed Chin et al.'s (2003, p. 196) as well as Carte and Russel's (2003, pp. 495–496) guidelines and recommendations for the evaluation and analysis of interaction effects with PLS. The process consists of the following steps: (1) standardize indicators for the main (X) and moderating constructs (Z), (2) create all pair-wise product indicators (i.e. each indicator from the main construct is multiplied with each indicator from the moderating construct), and (3) use the new product indicators to reflect the interaction construct (XZ). In a review of moderating effects in PLS models, Henseler and Fassott (2010, p. 723) also recommend the product indicator approach, which we have applied.

5.1 Validation of the Measurement Model

We used reflective indicators for all constructs. To evaluate the measurement model's adequacy, we assessed the reliability of individual items, internal consistency between these, and the convergent and discriminant validity of the model(D. Straub, Boudreau, & Gefen, 2004).

Cronbach's alpha (CAP) (Cronbach, 1951) reliability estimates were used to measure the internal consistency reliability. We also followed Chin's (1998a, p. ix) suggestion and calculated the composite reliability (CR), which can be used as an alternative to CAP. In doing so, we found that the CR values for all constructs were higher than 0.80, above the recommended minimum of 0.70 (Hair, Black, Babin, & Anderson, 2009, p. 710).

Convergent validity is demonstrated (for more details, see the Appendix) as (1) all constructs' average variance extracted (AVE) values were higher than the suggested threshold value of 0.50 (Fornell & Larcker, 1981, p. 46), and (2) all item-loadings were higher than 0.80, well above the 0.70 guideline and statistically significant at the 0.001 level (Hair et al., 2009, p. 709).

Evidence of discriminant validity could be found, since (1) the square root of all AVEs were larger than inter-construct correlations (see Table 3-1), and (2) all construct indicators had a

higher loading on their corresponding construct than on other constructs (Chin, 1998b, p. 327), and the differences of the cross-loading were much stronger than the suggested threshold of 0.1 (Gefen & Straub, 2005, p. 93).

In addition to the abovementioned tests we also conduct a full collinearity test, because scholars (see Kock & Lynn, 2012, p. 547) have recently pointed out that established validity and reliability tests do not properly capture lateral collinearity problems (i.e. predictor variables are collinear with a criterion variable). This causes a "mirage" and leads scholars to falsely conclude that strong causal effects are present in the model when in fact respondents perceived the latent variables in question as measuring the "same thing". Collinearity is assessed through the calculation of a variance inflation factor (VIF) for each of the latent variable and comparing it to commonly recommended threshold values of 10, 5, and 3.3, meaning that a VIF equal to or greater than, for example, 10 would suggest the existence of collinearity among the variables (a.k.a. multicollinearity). We use the conservative VIF value of 3.3 in our research and conduct a full collinearity test as proposed by Kock and Lynn (2012, p. 558).

Table 3-1. Construct-level measurement statistics and correlations among latent variables

LV†	M (S.D.)	CAP	CR	VIF	BITC	BME	BP	BPK	BR	BRS	IM	TMS
BITC (4)	5,47(1,52)	.89	.92	1.60	**0.87**	0.36	0.42	0.43	0.32	0.42	0.14	0.48
BME (4)	4,33(1,73)	.93	.95	2.05	0.36	**0.91**	0.59	0.39	0.62	0.50	0.20	0.34
BP (8)	4,73(1,59)	.96	.96	2.33	0.42	0.59	**0.88**	0.43	0.60	0.64	0.21	0.37
BPK (4)	5,32(1,31)	.89	.93	1.46	0.43	0.39	0.43	**0.87**	0.32	0.39	0.06	0.40
BR (6)	4,07(1,86)	.96	.97	2.23	0.32	0.62	0.60	0.32	**0.91**	0.62	0.28	0.33
BRS (4)	4,81(1,68)	.94	.95	2.19	0.42	0.50	0.64	0.39	0.62	**0.92**	0.17	0.34
IM (5)	2,15(1,81)	.93	.95	1.34	0.14	0.20	0.21	0.06	0.28	0.17	**0.89**	0.16
TMS (4)	4,89(1,68)	.91	.94	1.44	0.48	0.34	0.37	0.40	0.33	0.34	0.16	**0.89**

† *The number in parentheses indicates the items in the scale.*

Notes: LV = latent variable; SD = standard deviation; CAP = Cronbach's alpha; CR = composite reliability; VIF = variance inflation factor. Diagonal elements in bold are square roots of average variance extracted.

Results show that VIF values for all latent variables are much lower than 3.3, providing further confidence in reliability and validity of the constructs. Furthermore, for a variable to be a moderator, the variable should preferably have a low correlation with the predictor variable, since multicollinearity (rXZ) can lead to scholars falsely concluding that a moderation effect is present, when a nonlinear effect in disguise is actually present (Baron & Kenny, 1986, p. 1176). This suggests that this error and results contamination are unlikely.

We evaluated common method bias (CMB) using four tests. First, results from Harman's one-factor test show that five factors are present, which explains 80.02% of the variance, while the most variance explained by one factor is only 39.3%, indicating that common method biases most likely did not contaminate the results. Secondly, we applied a confirmatory method to analyze CMB using SmartPLS, as explained by Liang et al. (2007, p. 71). We added a common method factor to the PLS model. The indicators of all the constructs were reflectively associated with the method factor. Thereafter, each indicator variance was computed to explain the principle construct and the method factor. The results show that, while the indicators' average substantively explained variance is 0.782, common method-based variance is only 0.004. The ratio of substantive variance to method variance is about 218:1. Third, the full collinearity test applied earlier is a variance-based SEM equivalent to CMB tests used in covariance-based SEM (Lindell & Whitney, 2001, p. 117), and can be used also to rule out CMB based on the same criterion for absence of collinearity (Kock & Lynn, 2012, p. 561). Fourth, the correlation matrix (Table 3-1) does not indicate any highly correlated factors (highest correlation is r = .64), while evidence of CMB should have resulted in extremely high correlations (r > .90). Owing to the above evidence and the method variance's small size, we deduce that this study is very unlikely to be concerned by common method bias. Table 3-2 summarizes performance criteria used in this essay for assessing the quality of the measurement model.

Table 3-2. Measurement model quality assessment tests

Criterion	Empirical test criterion	Recommended values	Test successful
Indicator reliability	Indicator loadings	≥ 0.7	Yes
Internal consistency reliability	Composite reliability (CR)	≥ 0.7	Yes
	Cronbach's alpha (CAP)	≥ 0.5	Yes
	Dillon-Goldstein's rho (D.G.)	≥ 0.5	Yes
Convergent validity	Average variance extracted (AVE)	≥ 0.5	Yes
Discriminant validity	Fornell-Larcker criterion	the square root of all the AVEs is larger than the interconstruct correlations	Yes
	Cross-loadings	Cross-loading differences > 0.1	Yes
Common method bias	Harman's one-factor test	no single factor or a general factor should account for the majority of covariance among measures	Yes
	Common method factor technique	ratio of substantive to method variance low	Yes

Criterion	Empirical test criterion	Recommended values	Test successful
	Full collinearity test	VIF ≤ 3.3	Yes
	Correlation matrix	correlations between variables ≤ .90	Yes
Multicollinearity	Full collinearity test	VIF ≤ 3.3	Yes

5.2 Structural Model Results

As the next step, we independently analyzed the structural model and tested all proposed relationships between the constructs. Using a blindfolding approach (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005, p. 174), we measured the cross-validated communality and redundancy via a Stone and Geisser test. Q2 results for both cross-validated communality and redundancy were greater than zero, suggesting that the model has good predictive validity. A post hoc power analysis with the software G*Power 2 (Erdfelder, Lang, Buchner, & Faul, 1996, p. 175) resulted in a value greater than 0.80, which implies that our model is able to detect small effect sizes (Chin, 1998a, p. xi). Finally, we calculated our model's goodness-of-fit (GoF), as suggested by Wetzels et al. (2009, p. 187). They define GoF as the square root of the product of AVE and R^2 and by applying this formula, we found a GoF of 0.459. This result exceeds the cutoff value of 0.36 for large effect size of squared multiple correlations (R^2), as proposed by Cohen (1988), and allows us to conclude that our model performs well (Wetzels et al., 2009, p. 187).

In our assessment of the PLS model, the R^2 for each endogenous latent variable was examined, while the structural paths were evaluated for their significance. We considered a proposed relationship as being supported if the corresponding path coefficients were significant and had the proposed sign. Although some paths between variables were statistically significant, they did not meet the criterion of practical significance suggested by Kerlinger and Pedhazur (1973) and repeatedly emphasized by researchers – for instance, Igbaria et al. (1994) and Meehl (1990) – for inclusion in a path diagram. Therefore, as per the recommendation by Meehl (1990, p. 231), only betas with values of .10 or higher, and which are significant at the .05 level or better, are reported.

To provide a deeper analysis, we calculated the effect size using the F-test, since this is the most common and widely accepted measure of effect size in tests of moderation (Aiken & West, 1991). We used the difference between the squared multiple correlations to assess the overall effect size f^2 for the variables. Cohen (1988, pp. 413–414) classifies effect sizes of 0.02, 0.15, and 0.35 as *small*, *medium*, and *large*. However, in light of past 30 years of research on moderation effects, scholars are increasingly questioning this classification and are calling for more realistic standards, because the detected effect sizes are usually very small (Baron & Kenny, 1986, p. 1181; Chaplin, 1991, p. 169; Frazier et al., 2004, p. 119). For instance, Aguinis

et al. (2005, p. 99) have shown that the average effect size in tests of moderation is only 0.009. Consequently, Kenny (2011) proposes that a more realistic standard for moderation effect sizes might be 0.005, 0.01, and 0.025 for *small*, *medium*, and *large*. As a result, in our study, we find that it is appropriate to consider Cohen's (1988, pp. 413–414) effect size classification for *main effects* and Kenny's (2011) suggestion for interpreting the effect size of *moderation effects*. Table 3-3 summarizes performance criteria used in this for assessing the quality of the structural model.

Table 3-3. Structural model quality assessment tests

Criterion	Empirical test criterion	Recommended values	Test successful
Path coefficients	Absolute values	≥ 0.10 for practical significance of main effects; ≥ 0.005 for moderation effects	Yes
Coefficient of Determination	R^2	0.19 (small), 0.33 (medium), and 0.67 (large)	Yes
	f2 effect Size	0.02, 0.15, 0.35 (weak, moderate, strong effect)s	Yes
Significance of path coefficients	p-values	p < .001, p < .01, p < .05	Yes
Overall goodness-of-fit	Tenenhaus GoF	0.02, 0.15, 0.35 for weak, moderate, strong effect	Yes
Predictive relevance Q2		Q2 > 0	Yes

We applied a three-stage approach (Frazier et al., 2004, p. 117ff.) based on Chin et al.'s (2003, p. 196ff.) as well as Carte and Russel's (2003, pp. 495–496) guidelines and recommendations to estimate the model (for an overview of the significant results, see Table 3-4). This approach is important because, as argued by Hair et al. (2009, p. 773), analyzing multiple moderator effects simultaneously with main effects causes two critical problems. First, moderators are included with their interaction terms in the PLS path model and their simple effects are mistakenly interpreted as main effects. Second, when focusing simultaneously on multiple moderators, results are usually not properly interpreted (e.g. is moderator A influencing the interaction effect of moderator B and how does this interaction change the interpretation of the moderator model estimates?). They thus also recommend first estimating and evaluating the main effects in the PLS path model and, in a subsequent moderator analysis, examining one moderator a time to maintain interpretability of all results.

Table 3-4. PLS path analysis results

LV	**PLS (Stage I)** Main effects	**PLS (Stage II)** Individual analysis of moderation effects	**PLS (Stage III)** Total variance explained
		Model 1: IM*BR	
BITC-->BME	.24* [0.04] (.09)	.24* [0.04] (.09)	.24* [0.04] (.09)
BITC-->BP	.29* [0.04] (.12)	.29* [0.04] (.12)	.29* [0.04] (.12)
BITC-->BPK	.43* [0.04] (.19)	.43* [0.04] (.19)	.43* [0.04] (.19)
BITC-->BR	.11** [0.04] (.04)	.11** [0.04] (.04)	.11** [0.04] (.04)
BME-->BR	.58* [0.04] (.36)	.58* [0.04] (.36)	.58* [0.04] (.36)
BP-->BRS	.41* [0.04] (.26)	.42* [0.04] (.27)	.38* [0.04] (.24)
BPK-->BME	.28* [0.04] (.11)	.28* [0.04] (.11)	.28* [0.04] (.11)
BPK-->BP	.30* [0.04] (.13)	.30* [0.04] (.13)	.30* [0.04] (.13)
BR-->BRS	.38* [0.04] (.23)	.37* [0.04] (.23)	.35* [0.04] (.22)
IM-->BR		-.14* [0.04] (.02)	-.14* [0.04] (.02)
R^2 of BRS	**0.495 {0.493}**	**0.513 {0.510}**	**0.526 {0.517}**

*Notes: Path coefficients with standard errors in square brackets, and effect size:(f^2) in parentheses; *** p < 0.05; **p < 0.01, * p < 0.001;*

Adjusted R^2 in curly brackets; results in the grey cells are used for evaluation and interpretation.

In the first stage, we entered the main effects. Two proposed BM practices had a significant influence on BRS: BP (β = .41, p < .001) and BR (β = 0.38, p < .001), meeting the criteria of both statistical as well as practical significance, and supporting hypotheses H2a/b; together, they explain 52.6% of the variance in the dependent variable BRS. However, BME's effect on BRS was found to be not significant; thus, hypothesis H2c is not supported. As depicted in Figure 3-1, hypotheses H3a/b/c and H4a/b/c are supported, implying that communication between project team and the business departments and knowledge of business process are important predictors of BM practices, and that higher frequency of communication leads to a better understanding of the business. Furthermore, BITC emerged as the construct with the biggest total effect (0.33) – indirect and direct – on BRS. However, in light of the weak path coefficient (β=.11) of BITC → BR, the practical significance of BITC in explaining BR is questionable (Chin, 1998b). To clarify further, we calculated the effect size using the T-test. Among the variables' effect size, BME is found to have the strongest effect size in explaining BR with f^2 = .36, followed by BP on RBS (f^2 = .26), and BR on BRS (f^2 = .23).

In the second stage, for each moderation effect, we estimated standalone models in the presence of the main effects. The moderation effect of hypothesis H6 (i.e. the moderating effect of TMS) was found to be not significant and therefore is not supported. On the other hand, while IM's moderating effect on the effect of BP on BRS is found to be not significant, PLS results did show that IM has a significantly negative effect ($\beta = -.14$, $p < .001$, $f^2 = .02$) on BR → BRS, contrary to what we have theorized. Thus, H5 is partially supported.

Table 3-5. PLS three stage approach

Stage	Objective	Procedure	Result (for interpretation)
PLS Stage I	Analysis and contribution of main effects	Estimating the model with only main effects	Path coefficients and effect size of direct effects
PLS Stage II	Analysis and contribution of individual moderation effects	In the presence of the main effects estimating the model for each moderation effect separately	Path coefficients and effect size of each moderation effect
PLS Stage III	Evaluation of the model's overall performance	Estimating the model in the presence of all main and moderation effects	R^2

In Stage III, we included all the moderation effects in addition to the main effects, and find that, compared to Stage I, the overall R^2 increased by around 6% from 0.495 to 0.526, which is attributed to the moderation effects. Figure 3-1 shows the PLS analysis results. This three-staged approach is more appropriate when the goal is to understand each moderation effects impact. When estimating all the effects in a single model containing highly complex multiple two-way/three-way moderation effects, the path coefficients and the effect sizes become contaminated and uninterpretable even with the slightest extent of multicollinearity, which is caused by the underlying product-indicator approach (Carte & Russell, 2003, p. 484). However, when the goal is the evaluation of the model's overall performance via R^2, the inclusion of all the main and moderating effects, as done in stage III, does not distort the interpretation.

To facilitate a better understanding of the moderation effects, we drew up an appropriate visualization of the results, following Cohen et al.'s (2002, p. 269) recommendation, and calculated a simple regression equations for the BR at low (-1 SD) and high (1 SD) levels of the moderator variable IM. The obtained regression lines for high and low values of the moderator variable are then plotted to determine whether there is an effect. Looking at Figure 3-2, we notice that, compared to projects with high IM, an increase in BR has a stronger effect on increasing the BRS of projects with low IM.

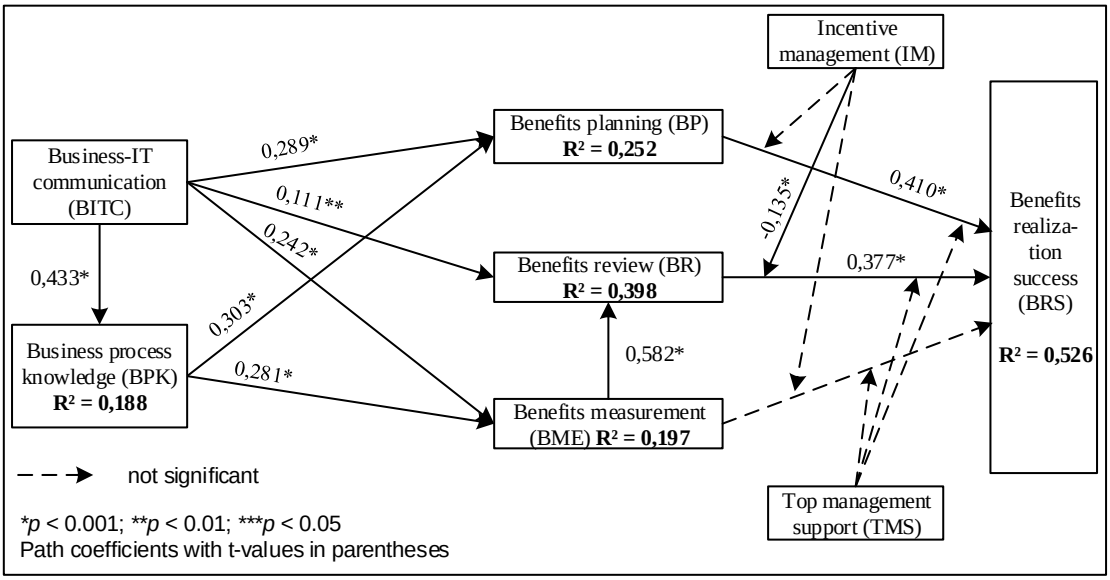

Figure 3-1. PLS results

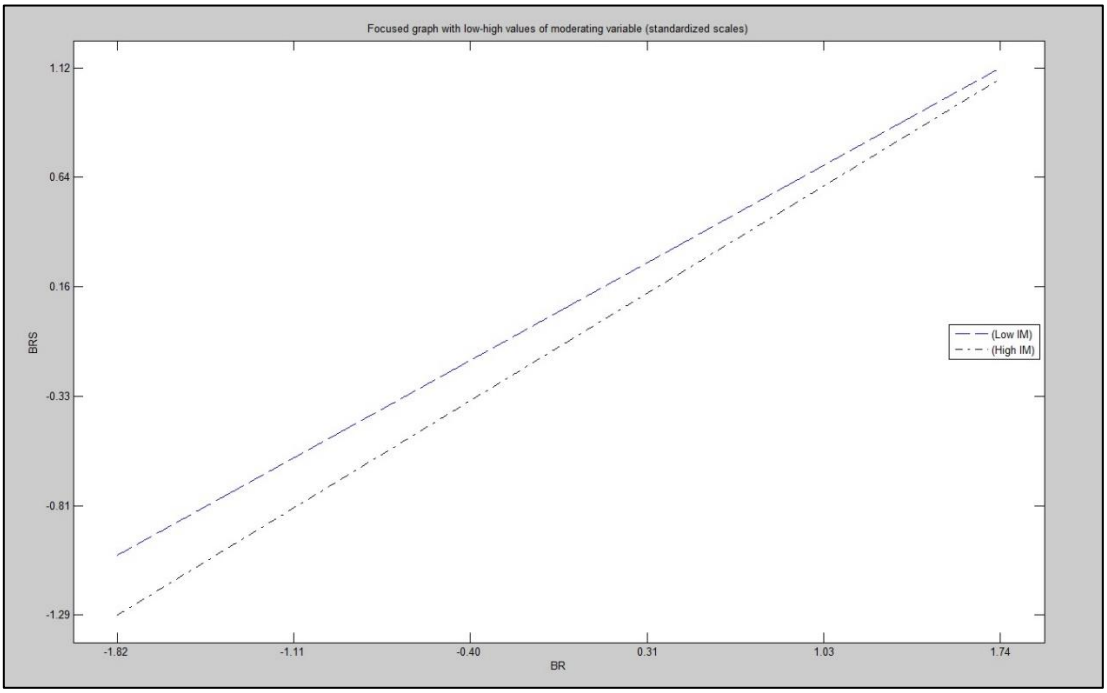

Figure 3-2. Moderating effect of incentive management on BR → BRS

6 Discussion and Implications

In general, the empirical results are encouraging and provide support for the study's objectives. One major objective related to the development of a fresh perspective on project benefits realization, both in terms of dimensionality as well as construct's structure. We propose a taxonomy of benefits management practices to understand how they might enable the realization of planned project value, something that has proven to be a difficult task in MIS literature, evident in the growing number of studies reporting failed projects.

The study results indicate that among the theorized BM practices: (1) the ability to monitor and review the status of benefits (BR) and (2) the ability to effectively plan the resources necessary to realize each identified benefit (BP) are the most important BM practices concerning an organization's ability to maximize project value.

Furthermore, we find that the ability to develop accurate measures to operationalize project benefits (BME) helps to realize project value indirectly by increasing the accuracy and effectiveness with which an organization is able to monitor the status of benefits realization – *if you can't measure it, you can't track it*. We think that this might be the case because BME might enable an organization to increase the transparency of the depth and breadth of realized value. Improved metrics tailored to the unique characteristics of individual benefits open the "grey box" of project value realization, illuminating why benefits realized look like they do and what might be done about them to allow organizations to diagnose problems and manage improvements before it is too late.

While BME emerged as the only substantial predictor of the BR practice, the theorized constituents of business-IT alignment – communication and business process knowledge – were proven to foster the development of effective BM practices.

Furthermore, the finding that frequent and productive communication between the project team and the business departments promotes better understanding of business process is in line with previous research, which found that communication leads to trust and information sharing (Jarvenpaa, Knoll, & Leidner, 1998, p. 33) and influences how knowledge is gathered, interpreted, and understood (Koskinen, 2004, p. 16). From the perspective of communication theory, shared understanding emanates from frequent and competent interactions between and among communicators (Henderson, Rockart, & Sifonis, 1987, p. 20).

This study's second major objective was to find empirical support for the theorized consequence of top management support and incentives on the effectiveness of BM practices as a means to realize project value. In general, while some of the proposed moderation effects were interestingly not confirmed, this cannot be traced back to the statistical inability of our study to detect small effects (since this study's power is greater than 0.80) (Cohen, 1988, p. 56). This

thus calls for an in-depth theoretical investigation of why the theorized effects were not found to exist. Regarding top management support, we think that this might be so owing to our definition and operationalization of the construct. First, despite a general consensus on top management support's importance, the concept is not yet clearly and convincingly understood in existing literature (Dong, Neufeld, & Higgins, 2009, p. 61; Elbanna, 2013, p. 279). Past findings on top management's impact have been partly conflicting due to diverse definitions and inconsistent measures (Dong et al., 2009, p. 61). For instance, Compeau and Higgins (1995, p. 203) found a negative relationship between TMS and self-efficacy. Regarding the depth and breadth of TMS, we studied a more superficial view of management support in which managers do not get involved in a project's operational activities. In the literature, TMS is differentiated between executive participation, which involves top management's investment of time and energy in IS/IT planning, development, and implementation, and executive involvement, in which executives do not need to be directly involved in managing IT, but rather provide strong signals and visions in support of IT to get the operative management personally involved in realizing its benefits (Jarvenpaa & Ives, 1991, p. 206). One possible explanation is that, concerning benefits management, top management might need to be involved more deeply in project operational activities (El Arbi, Ahlemann, & Kaiser, 2012, p. 10). Second, we studied top management support for the classical project goals of time, cost, and quality. However, the realization of benefits requires a change in perspective, away from a focus on project completion, with its classical goals, to organizational change (Young & Jordan, 2008, p. 720). Although speculative, based on nomological validity, we think that future studies should seek to study TMS specifically for BM and as executive participators.

One significant study finding is that incentives negatively influence the positive effect of benefits review practices (BR) in realizing project benefits. While originally theorized to have a positive effect, grounded on the overwhelming research based on principal-agent theory (Eisenhardt, 1989a), the current finding is in line with the recently developed stream of IS research on selective reporting (SR) in projects (Iacovou, Thompson, & Smith, 2009, p. 785). SR refers to behaviors that individuals responsible for projects (e.g., project managers and project sponsors) pursue while providing review reports based on regular assessment of the planned vs. actual status of metrics to his or her supervisor in order to convey an impression that does not accurately reflect the individual's perception of the project's actual status (Iacovou et al., 2009, p. 786). In conducting selective reporting, individuals optimistically bias their review reports to acquire incentives by (1) exaggerating the status of BM measures/metrics, and (2) omitting problem metrics in reports or downplaying their significance (Iacovou et al., 2009, pp. 786–787). Experimental studies, for instance that of Harrell and Harrison (1994, p. 570) or Smith et al. (2001, p. 211), also demonstrate that project reporters would be unwilling to report review results if they anticipate an incentive loss or immaterial results for

doing so. In such a case, the integration of incentive management might prove to be counterproductive to benefits realization, since it promotes selective reporting behavior, which distorts the benefits review (BR) practice, which is supposed to provide management with much-needed transparency regarding problems with the achievement of planned project benefits. This might also explain why incentives only have a negative moderation effect on BR → BRS and no effect on the other BM practices. While BP and BME also contribute to project benefits realization, the way they do this is not directly visible to the management approving the incentives. Management usually only receives review reports at regular intervals (an output of BR practice), upon which they are able to visualize the achievement of set goals. Therefore, distortion of BR to show that project benefits are being achieved might be the only way individuals can secure incentives from management, since manipulation in other BM practices are not directly acknowledged.

Interestingly, not all of the BM practices proposed in literature have found their way into our theoretical model. In particular, this holds true for two BM practices frequently mentioned and discussed: First, Ward et al. (1996, p. 216) propose the identification and structuring of benefits as a particular BM practice: before an organization can actually start developing metrics for measuring benefits realization it needs to identify and structure benefits. For this purpose, the different stakeholders within the organization should agree on the project's objectives. Subsequently, they must identify all potential benefits, which can range from being quantifiable as a financial value to simply being observable, meaning that they can only be measured by means of criteria agreed on by the stakeholders (Ward & Daniel, 2006, p. 110). Then the benefits must be structured in a way that provides transparency regarding a causal effect chain: "IS/IT functionality → business changes → benefits." While developing the conceptual model confirmed that the identification and structuring of benefits is an indispensable practice for an effective benefits management, when developing the measurement models we had significant problems in clearly separating this practice from that of developing adequate metrics for benefits measurement. Our analysis revealed that these two practices are not perceived to be separate entities rather than one integrated construct, since the constructs' discriminant validity was not sufficient. This view is supported by what informants reported on the way benefits management is implemented in organizations. Mostly, the identification and structuring goes along with developing various measures so that, in the mind of the informants, we basically talk about practices that refer to one process step. Owing to this, we decided to drop the construct of benefits identification.

The second practice proposed in literature that was not included in our model refers to discovering potentials for further benefits (Ward et al., 1996, p. 217). Owing to the complexity of many IS/IT projects, it is often not possible to identify all benefits prior to the project start.

Therefore, organizations should identify any other possible improvements after the implementation of the IS/IT and the business changes. The knowledge gained throughout the project should be used to identify additional value (Ward & Daniel, 2006, p. 115). Our qualitative field study showed that this practice is basically non-existent. While many of the informants stressed that continuous improvement regarding their project and benefits management goes without saying, a structured analysis of additional benefits did not appear natural to them and required explanation. Even after having explained the value of such an analysis, many of them remained skeptical. This might be due to the relatively low maturity of most organizations. Successfully implementing planned benefits seems to be enough of a challenge for most firms, and additional unexpected benefits are not really within the focus of management. Apparently, it is hard to measure this practice's influence when it is simply not observable, which is why we did not consider it in the quantitative analysis of our research.

From a practical perspective, our study helps organizations to understand the nature of successful BM and to implement it effectively. Organizations can apply our results to prioritize BM implementation activities and assign their scarce resources accordingly. While those organizations with a fairly low BM maturity can identify the relevant practices to promote first, other organizations can foster the most relevant practices and can thereby increase their benefits realization's success. In addition, our results stress the importance of a tight business IT communication and mutual business process knowhow, factors that are typically left out in practice and that have important impacts in benefits management.

7 Summary and Outlook

Here, we analyzed the antecedents of successful benefits realization from IT/IS investments by means of a quantitative-empirical study. In doing so, we conducted exploratory interviews with informants from 29 firms to construct a basic model, grounded in BM literature, which explains how benefits management practices and contextual factors influence benefits realization. Subsequently, we used a survey to quantify the effects we theorized beforehand. Our study makes three primary contributions: (1) We have developed a taxonomy of benefits management practices associated with a set of preliminary measurement models that captures essential BM practices necessary for benefits realization success. (2) We have shown that the implementation of an incentive management system may have adverse effects on the effectiveness of benefits management (especially benefits review practices). (3) We have relativized the importance of some of the benefits management practices proposed in literature.

Our research has limitations. Since the population consisted only of German-speaking industrialized European nations, which have similar cultural, legal, and organizational structures, certain relationships might be found to be weaker or stronger in developing nations. For instance, in high-powered cultures such as Japan, top management support's influence might have a much stronger effect on generating commitment from organizational members towards aligning personal goals and business goals. In another example, prior research and concepts in organizational sociology have also found that high bureaucracy reduces the effectiveness and flexibility of management practices such as BM by creating a vicious circle of formalized procedures (Platje, Seidel, & Wadman, 1994). Scholars should address these questions.

Concerning measurement, our instrument evaluated self-reported perceptions. There is also a need to improve the operationalization of BM constructs. Since this is the first study to develop measures for BM constructs, because no validated BM scales exist, the indicators should be further refined and validated. Even though such perceptual self-reports tend to be subjective, in our view they shed significant light on the phenomenon under investigation (Iacovou et al., 2009).

Future research may focus on these limitations and may overcome some of this study's limitations. As outlined in Section 6, additional research opportunities lie in the further development of the top management support construct and the analysis of how it influences benefits management realization. While our model certainly sheds light on the relative relevance of certain BM practices for benefits implementation success, there is still room for more detailed prescriptions on how to organize benefits management practices. Thus, we propose research that focuses on process models, methods, and tools to support effective benefits management, as we have outlined in this theoretical study.

In conclusion, realization of value from IS/IT investments remains a complex and elusive yet extremely important phenomenon. We trust that the development and testing of our model will advance theory and research in this crucial area.

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Appendices

Appendix A: Survey Questions

Code	Measure	Literature
Business-IT Communication (BITC)		
BITC1	Frequent meetings took place between the project sponsor and the project team.	Kearns and Lederer (2004)
BITC2	The project sponsor and the project team had frequent and active discussions.	Kearns and Lederer (2004)
BITC3	The project team had easy access to the project sponsor.	Kearns and Lederer (2004)
BITC4	Overall, I rate the communication between the project team and the project sponsor as very good.	Self-developed
Business Process Knowledge (BPK)		
BPK1	The project team had a high level of knowledge regarding the single activities carried out within the business process that were affected by the project.	Bassellier and Benbasat (2004)
BPK2	The project team had a high level of knowledge regarding the interfaces to business process indirectly affected by the project.	Bassellier and Benbasat (2004)
BPK3	The project team had a high level of knowledge regarding the language (e.g., key concepts, jargon, etc.) of the project sponsors division.	Bassellier and Benbasat (2004)
BPK4	Overall, the project team had a high level of knowledge regarding the core business processes affected by the project.	Self-developed
Top Management Support (TMS)		
TMS1	Top management was available for important project-related decisions.	Garrity (1963)
TMS2	Top management showed active interest in the project.	Garrity (1963)
TMS3	Top management provided necessary resources to execute the project successfully.	Rocheleau (2000)
TMS4	Overall, I rate the top management support in the project as high.	Self-developed
Benefits Planning (BP)		
BPC1	Project stakeholders were competent in developing a plan on how to achieve benefits.	Self-developed
BPC2	Project stakeholders were competent in planning when to achieve benefits.	Self-developed
BPC3	Project stakeholders were competent in planning resources to achieve benefits.	Self-developed

BPC4	Overall, I rate the benefits planning competency in the project as high.	Self-developed
BPC5	Project stakeholders knew how they contribute to realizing planned benefits.	Self-developed
BPC6	Project stakeholders knew when planned benefits would be realized.	Self-developed
BPC7	Project stakeholders knew which resources were needed to achieve benefits.	Self-developed
BPC8	Overall, I rate transparency of benefits planning in the project as high.	Self-developed
Benefits Review (BR)		
BR1	Project stakeholders were competent in measuring benefits after project completion.	Self-developed
BR2	Project stakeholders were competent in determining measures to be undertaken regarding unachieved benefits.	Self-developed
BR3	Overall, I rate competency of benefits controlling in project as high.	Self-developed
BR4	Project stakeholders knew which benefits were to be realized with the project.	Self-developed
BR5	Project stakeholders knew that benefits were measured throughout the project lifecycle.	Self-developed
BR6	Overall, I rate the ex ante benefits realization transparency in the project as high.	Self-developed
Benefits Realization Success (BRS)		
BRS1	Project benefits were realized according to the plan (including changes to the plan).	Self-developed
BRS2	Project stakeholders were satisfied with the benefits realization success.	Self-developed
BRS3	The intended changes within the organization could be realized successfully.	Self-developed
BRS4	Overall, I rate the benefits realization of the project as high.	Self-developed
Incentive Management (IM)		
IM1	The incentive management system provides rewards based on the achievement of benefits.	Self-developed
IM2	Incentives were granted based on benefits achieved with the project.	Self-developed
IM3	Project stakeholders knew about the incentives provided for achieving target benefits.	Self-developed

IM4	The incentive management system includes staff performance reviews in which benefits achievement were considered.	Self-developed
IM5	Overall, I rate the integration of incentive management and BM for the project as high.	Self-developed
Benefits Measurement (BME)		
BME1	Project stakeholders were competent in defining indicators to measure benefits.	Self-developed
BME2	Project stakeholders were competent in selecting data necessary to measure benefits.	Self-developed
BME3	Project stakeholders were competent in using software to measure benefits.	Self-developed
BME4	Overall, I rate competency to measure benefits in the project as high.	Self-developed

A1. Overview of the study's survey questions

Appendix B: Convergent Validity

	BITC	BME	BP	BPK	BR	BRS	IM	TMS
BITC1	0.81	0.26	0.29	0.36	0.22	0.24	0.09	0.36
BITC2	0.90	0.33	0.37	0.39	0.29	0.36	0.11	0.39
BITC3	0.82	0.30	0.36	0.34	0.30	0.41	0.16	0.42
BITC4	0.92	0.35	0.42	0.41	0.30	0.42	0.12	0.46
BME1	0.35	0.92	0.56	0.43	0.58	0.49	0.16	0.36
BME2	0.34	0.94	0.55	0.36	0.58	0.47	0.19	0.31
BME3	0.29	0.84	0.46	0.26	0.49	0.38	0.16	0.23
BME4	0.34	0.96	0.57	0.36	0.62	0.49	0.21	0.32
BP1	0.36	0.51	0.87	0.42	0.51	0.54	0.20	0.32
BP2	0.39	0.50	0.86	0.41	0.48	0.55	0.17	0.39
BP3	0.35	0.48	0.85	0.37	0.47	0.56	0.15	0.34
BP4	0.41	0.57	0.93	0.42	0.56	0.62	0.21	0.39
BP5	0.34	0.53	0.86	0.34	0.52	0.53	0.17	0.29
BP6	0.34	0.47	0.84	0.34	0.50	0.52	0.16	0.29
BP7	0.36	0.49	0.88	0.32	0.54	0.54	0.17	0.27
BP8	0.39	0.55	0.92	0.37	0.58	0.58	0.22	0.33
BPK1	0.37	0.32	0.36	0.88	0.27	0.36	0.08	0.32
BPK2	0.39	0.37	0.40	0.88	0.31	0.36	0.07	0.34
BPK3	0.36	0.32	0.38	0.82	0.24	0.30	-0.01	0.33
BPK4	0.39	0.34	0.36	0.91	0.28	0.33	0.07	0.40
BR1	0.28	0.61	0.50	0.28	0.90	0.58	0.24	0.28
BR2	0.32	0.49	0.47	0.27	0.88	0.55	0.25	0.34
BR3	0.34	0.59	0.53	0.30	0.94	0.59	0.28	0.32
BR4	0.27	0.51	0.60	0.31	0.91	0.60	0.23	0.27
BR5	0.25	0.60	0.55	0.28	0.89	0.50	0.28	0.27
BR6	0.30	0.58	0.60	0.30	0.93	0.56	0.26	0.31
BRS1	0.37	0.44	0.58	0.35	0.56	0.90	0.11	0.30
BRS2	0.37	0.44	0.59	0.36	0.57	0.93	0.15	0.32
BRS3	0.40	0.48	0.53	0.36	0.52	0.88	0.17	0.34
BRS4	0.41	0.50	0.62	0.35	0.62	0.96	0.18	0.33
IM1	0.12	0.18	0.20	0.04	0.25	0.15	0.90	0.13
IM2	0.15	0.17	0.19	0.07	0.29	0.15	0.91	0.15

IM3	0.12	0.14	0.14	0.02	0.21	0.11	0.85	0.13
IM4	0.11	0.19	0.18	0.08	0.26	0.16	0.89	0.15
IM5	0.12	0.20	0.19	0.05	0.24	0.17	0.90	0.15
TMS1	0.42	0.30	0.32	0.34	0.28	0.31	0.16	0.87
TMS2	0.43	0.29	0.28	0.30	0.28	0.23	0.14	0.85
TMS3	0.38	0.27	0.35	0.37	0.27	0.33	0.11	0.85
TMS4	0.45	0.33	0.36	0.39	0.33	0.35	0.15	0.96

B1. Cross-loadings

Appendix C: Common Method Bias

Total variance explained							
Component		Initial Eigenvalues			Extraction sums of squared loadings		
		Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
	1	15,328	39,303	39,303	15,328	39,303	39,303
	2	3,878	9,944	49,247	3,878	9,944	49,247
	3	3,327	8,532	57,779	3,327	8,532	57,779
	4	2,232	5,723	63,501	2,232	5,723	63,501
	5	1,856	4,760	68,262	1,856	4,760	68,262
	6	1,712	4,389	72,651	1,712	4,389	72,651
	7	1,600	4,103	76,754	1,600	4,103	76,754
	8	1,272	3,262	80,016	1,272	3,262	80,016
	9	,726	1,862	81,878			
	10	,595	1,525	83,404			
	11	,558	1,430	84,834			
	12	,482	1,237	86,071			
	13	,447	1,147	87,218			
	14	,391	1,003	88,221			
	15	,362	,928	89,149			
	16	,339	,869	90,018			
	17	,328	,841	90,859			
	18	,312	,799	91,658			

C1. Harman's one-factor test: Principle component analysis

BREAKING OLD HABITS – A DESIGN THEORY ON SUCCESSFULLY STEERING BENEFITS REALIZATION FROM IS/IT INVESTMENTS[3]

Abstract

Despite substantial investments in information systems and information technology (IS/IT), the successful realization of their benefits is still often considered a major challenge for organizations. Benefits management (BM) aims at resolving this issue and has become increasingly popular in recent years. Although several papers have been published in this domain, they mainly focus on descriptive research endeavors. Prescriptive research dealing with design science for holistic BM is still scarce. At the same time, BM approaches in practice are considered immature and are often implemented unsuccessfully. These gaps motivate this study, which aims at developing a design theory that represents the core aspects of effective BM implementations. Based on an exploratory field study and an extensive literature review, we first analyze the issues that inhibit BM implementations in practice. We find that BM often suffers from unclear accountability for the realization of benefits, as well as organizational resistance to change, which is represented in our derived set of meta-requirements. By drawing on the organizational control theory, we develop eight design principles and testable propositions explaining how these principles tackle the challenges associated with BM. Finally, we conduct interviews with subject-matter experts to validate our design principles. Our research helps organizations locate, understand, and correct flaws in their BM implementation and successfully steer benefits realization between business and IS.

Keywords: Benefits management, benefits realization, organizational control, design science research

[3] An earlier version of this essay has been published in 2013. However, this essay includes a new manuscript, theoretical foundation, meta-requirements, design principles, testable propositions, as well as a new evaluation. The earlier version has been published in the proceedings of the European Conference on Information Systems (ECIS) 2013:

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List of Abbreviations

BDN Benefits dependency network

BM Benefits management

CC Control context

CCS Core control system

DP Design principle

DS Design science

ERP Enterprise resource planning

IS Information system

IT Information technology

MR Meta-requirement

PMI Project management institute

TP Testable proposition

1 Introduction

For many years, benefits arising from investments in information systems and information technology (IS/IT) have been the subject to much debate (Doherty, Ashurst, & Peppard, 2012; Kohli & Grover, 2008; Nielsen & Persson, 2017; Paré, Bourdeau, Marsan, Nach, & Shuraida, 2008; Shang & Seddon, 2000). Many organizations invest heavily in IS/IT in order to realize benefits after a successful IS/IT implementation. These benefits range from achieving business objectives and preventing deterioration in performance, to generating a competitive advantage by exploiting business opportunities or creating new organizational competencies (Peppard, Ward, & Daniel, 2007, p. 5) Overall, such benefits represent a significant element of IS/IT investments' value (Brynjolfsson & Hitt, 2000, p. 24).

However, many organizations are still suffering from low success rates of IS/IT investment projects today, including not achieving the intended benefits (El Emam & Koru, 2008; Levinson, 2009; Shpilberg, Berez, Puryear, & Shah, 2007). For instance, Barker & Frolick (2003, pp. 48–49) report on a major soft drink bottler's ERP endeavor, which was intended to realize the benefits of integrated communication. However, although being 'successfully' implemented (in terms of a running system), the ERP system was considered a hindrance to the business. In another case, a technically (on time, within budget, and to specification) successfully implemented customer relationship system was not seen as beneficial to the organization (Peppard et al., 2007, p. 2). The examples suggest that delivering IS/IT on time, within budget, and at the required quality is not enough to guarantee benefits realization.

As a means to this end, several approaches have evolved under the term *benefits management* (BM), to achieve and maximize the anticipated benefits from IS/IT investments. Benefits management is defined as "organizing and managing IS/IT initiatives so that potential benefits arising from the use of IT are actually realized" (Ward, Taylor, & Bond, 1996, p. 214). It differs from other management approaches, such as project portfolio management, in that it places particular emphasis on IS/IT investment benefits and their realization, by conducting appropriate business changes in addition to the technical implementations themselves (Ward, De Hertogh, & Viaene, 2007, p. 2). Consequently, intermediate business processes, which are ultimately derived from "understanding the business and committing it to change" (Earl, 1992, p. 101), improve the effectiveness and efficiency of such IS/IT initiatives (Dehning & Richardson, 2002, p. 10; Melville, Kraemer, & Gurbaxani, 2004, p. 293). In contrast, common frameworks such as the standards proposed by the PMI (Project Management Institute, 2008) do not address an ongoing exploitation of IS/IT investments' benefits after project closure.

The basic assumption in BM literature is that benefits can be realized if they are managed appropriately (Remenyi & Sherwood-Smith, 1998, p. 83). Several scholars have made suggestions for effective BM designs. For instance, Ward et al. (1996) suggest a comprehensive

framework for a BM process, which they have further elaborated over time (Ward & Daniel, 2006). Other studies describe and analyze the difficulties of realizing benefits from IS/IT investments, but generally on a high abstraction level, without any reference to specific BM practices (Earl, 1992; Joshi, 1991; Markus & Benjamin, 1996; Zmud & Cox, 1979). When analyzing studies and reports published since 1996, which consistently consider BM a very effective management approach, it seems surprising that scholars generally still find very low BM adoption rates in organizations (e.g., Breese, Jenner, Serra, & Thorp, 2015; Coombs, Doherty, & Neaga, 2013; Laursen & Svejvig, 2015; Päivärinta & Dertz, 2008; Serra & Kunc, 2015).

Evidently it is difficult to realize benefits from IS/IT investments by conducting business changes, as that process involves the manipulation of interactive relationships among technological and social systems to ensure the availability of required business and IT skills and knowledge (Markus, 2004, p. 6; Peppard & Ward, 2005, p. 56). For example, it might be quite difficult to convince employees of the need for particular changes in their work routines, to agree to a suitable change process, and to overcome resistance (Fernandez & Rainey, 2006, pp. 169–170). Similarly, in a recent study on inhibitors and facilitators regarding benefits realization, Coombs (2015, p. 377) found staff resistance to new working routines a very common and relevant inhibitor. Therefore, as IS/IT investment projects are typically embedded in an environment linked with politics, motivation, and conflict, many problems emerge through such stakeholder interactions and relations (Markus & Benjamin, 1996, p. 390; Robey, Farrow, & Franz, 1989, p. 1173). Consequently, based on the involved parties' different priorities and goals, specific control mechanisms are necessary to increase their contribution and cooperation (Clark, Cavanaugh, Brown, & Sambamurthy, 1997, p. 447; Kirsch, Sambamurthy, Ko, & Purvis, 2002, pp. 493–494). These mechanisms enable the facilitation of business changes, and thus foster the successful benefits realization from IS/IT investments.

Against this background, the goal of the current study is to investigate what core principles help to drive successful BM, by implementing purposeful control mechanisms to steer benefits realization between business and IT. To this end, we draw on organizational control theory to propose a BM design theory that addresses current BM issues in practice. In doing so, we apply our findings from a broad exploratory field study of 29 companies and an extensive literature review to derive appropriate meta-requirements (Walls, Widmeyer, & El Sawy, 1992, p. 42). This ultimately leads to eight design principles and testable propositions, which are subjected to three cycles of evaluative interviews with subject-matter experts and subsequent refinement, ensuring their maturity and validity. By presenting this design theory as a "systematic specification of design knowledge" (Gregor & Jones, 2007, p. 314), we intend to help organizations locate, understand, and correct flaws in their BM implementation and to contribute to the nascent body of knowledge on BM. In doing so, we provide guidelines on

how to steer benefits realization through several control mechanisms that pervade the organization on different levels. Furthermore, we aim to accelerate the development of effective BM approaches in organizations toward a higher level of maturity.

The reminder of the essay is structured as follows: Section 2 presents prior work on BM, business IT alignment and organizational control theory. The research method is outlined in Section 3 together with a short elaboration on the design science paradigm. In Section 4, we describe the design theory in terms of meta-requirements, design principles, and testable propositions. Subsequently, we evaluate our design theory in Section 5. This is followed by the discussion, along with a description of contributions, limitations and future research.

2 Theoretical Foundations

2.1 Benefits Management

Generating business benefits and value from IS/IT investments represents one of the major research streams in the IS discipline (Dehning, Richardson, Urbaczewski, & Wells, 2004, p. 56; Kohli & Grover, 2008, p. 36). Reference is commonly made to the organizational impacts of IS/IT, such as productivity increases, cost reductions, or competitive advantages (Devaraj & Kohli, 2003, p. 275; Peppard et al., 2007, p. 5). Existing studies have found that IS/IT do not create the anticipated benefits in isolation (Melville et al., 2004, p. 294; Soh & Markus, 1995, pp. 38–39; Wade & Hulland, 2004, pp. 129–130); instead, they require complementary organizational factors in different shapes and sizes, such as people and management, routines, business processes, knowledge assets, etc., which play an *enabling* role in generating IS/IT business value. In conjunction with these factors, an organization has the necessary foundation to realize benefits by adapting or redesigning its business processes to the new IS/IT functionalities (Melville et al., 2004, p. 294; Wade & Hulland, 2004, pp. 129–130). For instance, the realization of the benefits of a new data warehouse requires a change in the organization's culture toward more flexible and customer-oriented staff that follows redesigned business processes (Markus, 2004, p. 6). These benefits can manifest on the individual, company, industry, or economic level (Davern & Kauffman, 2000, p. 127; Devaraj & Kohli, 2003, p. 275; Kohli & Grover, 2008, p. 26). Furthermore, the alignment and partnering between IT and business has also been found to be an important success factor in delivering benefits from IS/IT (Devaraj & Kohli, 2003, p. 285; Peppard & Ward, 1999, p. 55).

However, most conceptualizations of IS/IT business benefits and value generally remain very abstract (e.g., Joshi, 1991; Markus & Benjamin, 1996; Zmud & Cox, 1979). Thus, the IS/IT business value creation process is considered a "grey box" (Schryen, 2013, p. 159) that demands further attention on how, why, and when IS/IT investments deliver business value. Based on this motivation, BM has emerged as an adjacent research topic dealing with a comprehensive approach of realizing business benefits from IS/IT investments. In this context, scholars have introduced concepts such as "value conversion contingency" (Davern & Kauffman, 2000, p. 122), "conversion effectiveness" (Weill, 1992, p. 307), and "benefits realization capability" (Ashurst, Doherty, & Peppard, 2008, p. 355) to denote organizations' ability to transform IS/IT resources into actual benefits.

Research on BM began in the mid-1990s with an empirical study on industry practices in the UK (Ward et al., 1996, p. 214) that found many organizations being unsatisfied with the available methods for realizing benefits. Consequently, Ward et al. (1996) developed the Cranfield BM process model, one of the most widely used and cited models as a means to overcoming

this hurdle. This model identifies five activities as key for benefits management: (1) identification and structuring of benefits, (2) planning benefits realization, (3) executing the benefits realization plan, (4) evaluating and reviewing results, and (5) analysis of potential for further benefits. The basic idea behind the model is the lifecycle perspective of the benefits of IS/IT investments: benefits must be identified, evaluated (ex ante), realized, and evaluated again (ex post). Furthermore, scholars have focused on developing helpful tools for benefits identification and analysis, such as the benefits dependency network (BDN) (Coombs, 2015; Peppard et al., 2007).

In an attempt to explain the impacts of benefits management, scholars have drawn on well-established theories. For instance, Doherty (2013) investigated the relationship between benefits management and socio-technical theory to identify commonalities and differences, with the former place more focus on the dynamic context of modern organizations, and far more explicitly on delivering organizational value. Odusanya, Coombs, & Doherty (2015) recently started to investigate the context of BM from an IT culture perspective, contributing different IT culture archetypes with an impact on the successful exploitation of IS/IT investments.

Further research has concentrated on more specific aspects of BM, such as critical issues to facilitate the adoption of BM practices in municipalities (Päivärinta, Dertz, & Flak, 2007), BM at program and portfolio levels (Breese, 2012), the process of BM itself (Bennington & Baccarini, 2004), or factors that will ensure the realization of benefits from IS/IT (Dhillon, 2005). Also, narrow application contexts of BM have been investigated, such as the relationship between BM and strategic alignment on the succss of IT outsourcing (Lier & Dohmen, 2007), BM practices in the construction industry (Love & Irani, 2004), and identifying a viable BM framework for IT service management implementations (Mcloughlin, Scheepers, & Wijesinghe, 2014).

Overall, the existing literature sheds light on different BM-related aspects and so far provides meaningful insights into the field. However, besides most findings missing an empirical validation, there is only little evidence that organizations were able to incorporate these insights into meaningful BM implementations (e.g., Badewi, 2016; Marnewick, 2016). Thus, we propose that clear recommendations on successful BM, and on steering the complex social interactions between business and IT toward mutual organizational goals (i.e. benefits realization) are required to improve the current situation.

2.2 Organizational Control Theory

Barnard (1968) and Mayo (1945) already emphasized the fundamental problem in the economy, and thus also in organizations: individuals only have partially overlapping goals. Hence, dedicated means are necessary to control these individuals and channel their efforts into a

uniform direction toward organizational goals (Flamholtz, 1983, p. 154). To achieve their objectives, organizations require mechanisms that "effectively control members' activities in a manner functional for the organization" (J. Barker, 1993, p. 409). In the context of our study, we use the term "organizational control" in its complete meaning of "mechanisms (both processes and techniques) designed to increase the probability that people will behave in ways that lead to the attainment of organizational objectives" (Flamholtz, Das, & Tsui, 1985, p. 38). We chose this definition as it highlights the need to control for the interaction between the business and IT while steering their combined efforts toward successful benefits realization.

Traditionally, scholars investigating organizational control distinguish between three types of control, i.e. formal outcome control, formal behavior control, and informal clan control, as identified in Ouchi's (1978, 1979, 1980) seminal work on control. The implication is that formal control types are exercised with formal mechanisms, such as project plans, reports, and test protocols, while informal control is applied through social norms, peer pressure, and social events (Kirsch, 2004, p. 378). Ouchi (1979, p. 843) provided a dominant framework on organizational control that is still adopted and empirically studied today (e.g., Cardinal, 2001; Eisenhardt, 1985; Kirsch, 1996; Liu, Borman, & Gao, 2014; Rustagi, King, & Kirsch, 2008). It helps managers to choose the most appropriate control type depending on the respective task context (Figure 4-1).

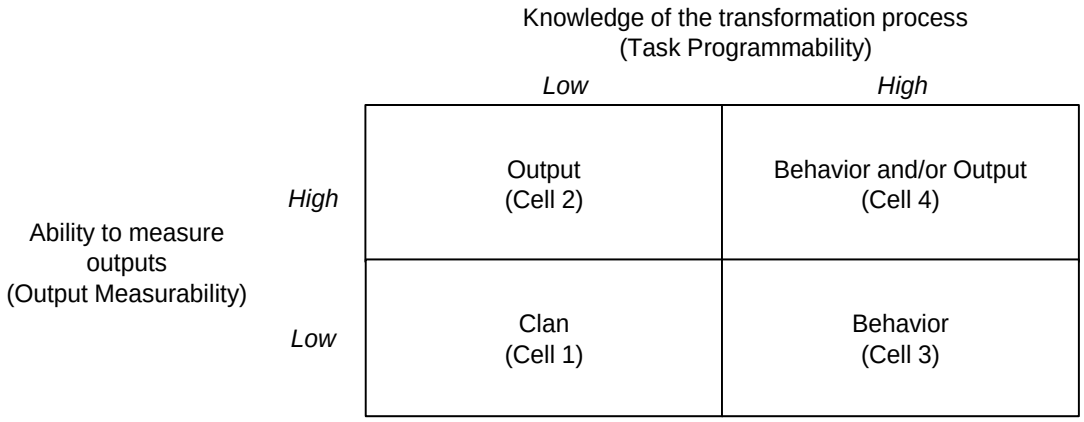

Figure 4-1. Choice of control type (Liu et al., 2014, p. 793)

If a task is easily understood and an individual's behavior easy to surveil (cells 3 and 4), the necessary behavior for achieving the anticipated results can be specified (e.g., in terms of personal surveillance of behavior, role specifications, process guidelines) including all relevant steps to be followed (Ouchi, 1979, p. 844). In contrast, if the behavior is difficult to monitor but output can easily be measured (cells 2 and 4), then goals can be predetermined, their achievement be measured and controlled (e.g., by system specifications, monitoring, providing rewards for achieved project goals), and their final output be assessed (Eisenhardt, 1985, p. 136; Ouchi, 1978, p. 175). Finally, when the behavior as well as the output are difficult to control, clan control (cell 1) is applied to socialize individuals according to common norms,

beliefs, and values (Birnberg & Snodgrass, 1988, p. 449; Ouchi, 1979, p. 838). While consistent behavior with these values is rewarded, inconsistent behavior is punished (Ouchi, 1979, p. 838). It typically includes mechanisms such as joint problem solving, open and honest communication, participatory decisions, and keeping promises (Fryxell, Dooley, & Vryza, 2002, p. 871; Luo, 2002, p. 904).

In practice, organizations typically use several control types simultaneously, whose interactions may not simply be ignored as they achieve multifaceted goals (Tiwana, 2010, pp. 118–119; Tiwana & Keil, 2009, pp. 32–33; Turner & Makhija, 2006, p. 214). Several studies found that control types indeed have significant correlations leading to enhanced performance when being employed in parallel (Cardinal, 2001, p. 30; Cardinal, Sitkin, & Long, 2004, p. 423; Kirsch, 1996, p. 17). While formal and informal controls toward a mutual direction might leverage each other, given a harmonious alignment, contradictions and imbalances might create confusion and disorientation in the organization weakening the anticipated effects (Cardinal et al., 2004, p. 425; Kirsch, 2004, p. 392; Tiwana, 2010, p. 108). Consequently, control types may not simply be analyzed and employed in isolation, but in concert with each other.

Until today, only few frameworks follow this idea and integrate several control types. Among these, Flamholtz et al.'s (1985, p. 38) integrative framework of organizational control (Figure 4-2) represents one of the most widely adopted and cited models. In comparison to other models, it provides a very comprehensive framework as it also addresses the contextual variables of an organization. In detail, it describes a core control system that is embedded in the control context, including the organizational structure, culture, and the external environment encompassing an organization. On the one hand, the core control system consists of control mechanisms (processes and techniques) that help to *directly* influence the behavior of people toward the achievement of organizational goals. On the other hand, the control context includes mechanisms with an *indirect* influence (Flamholtz et al., 1985, p. 38).

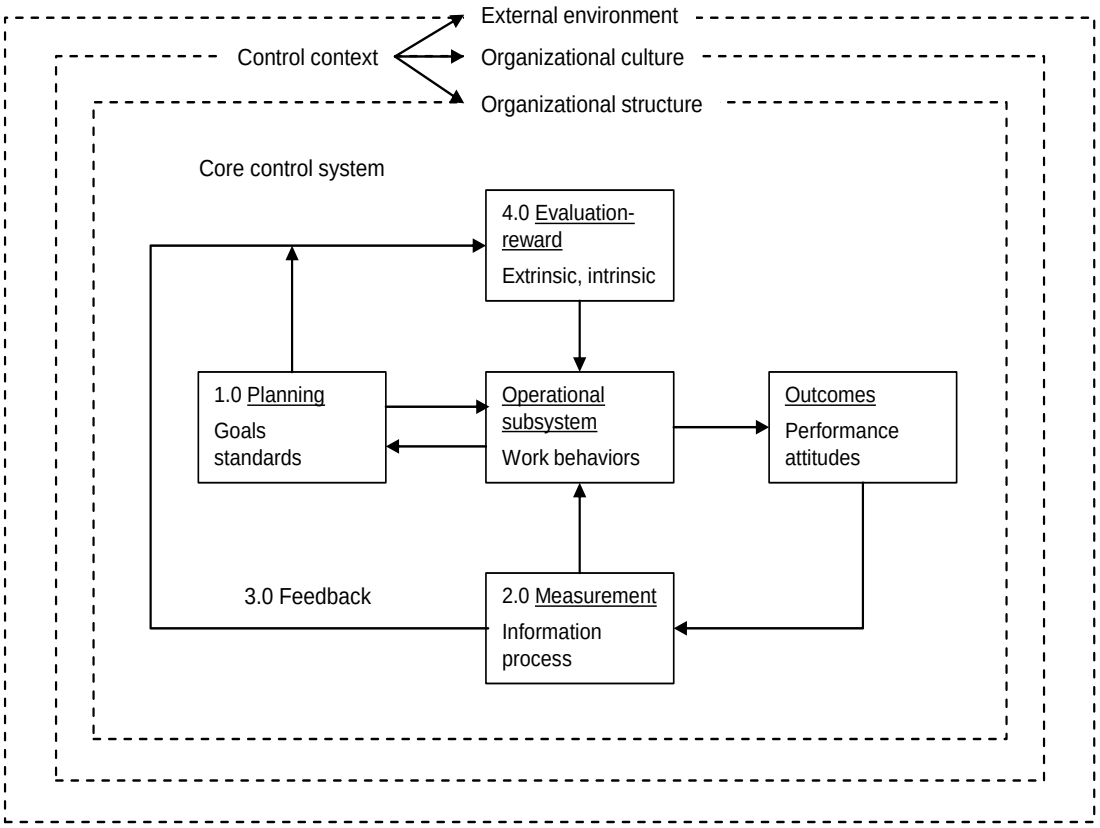

Figure 4-2. An integrative framework of organizational control (Flamholtz et al., 1985, p. 38)

At the center of the core control process is the operational subsystem that links the other elements and "includes the behaviors exhibited by the individual and the group or larger organizational units, pertaining to the acquisition, allocation, utilization, development, conservation and disposition of resources" (Flamholtz et al., 1985, p. 39). The process begins with the planning activity to establish goals and standards for the operational subsystem, for which the particular individual or group is held responsible. The measurement mechanisms provide information about the outcomes (e.g., productivity, turnover, etc.) that can be compared with the initially planned goals. In case of observed deviations, it provides feedback to the evaluation-reward mechanisms and to the operational subsystem for corrective actions. Finally, the evaluation-reward mechanisms administer extrinsic and intrinsic rewards based on the evaluated work performance. While four of the described six elements represent the core control mechanisms (as marked with two-digit numbers), these intend to influence individuals behavior within the organization (Flamholtz et al., 1985, pp. 39–45).

The control context can have a facilitating or inhibiting influence on the effectiveness of the core control system to coordinate human efforts. Its organizational structure is a rather static component that specifies behavior by delegating decision-making (centralized versus decentralized/shared), determining reporting relationships, job descriptions, hiring procedures, etc. The organizational culture is a clan control type that is defined as "the set of values, beliefs, and social norms which tend to be shared by its members and, in turn, tend to influence

thoughts and actions" (Flamholtz, 1996a, p. 26). Organizational culture is a very appropriate control mechanism, particularly when the output is difficult to measure and only imperfect knowledge about the task is available. As the last element, the external environment represents the organization's societal context, which is conceived as the source of meaning and subsequently guides the organization's behavior (Flamholtz et al., 1985, p. 46). Overall, the framework addresses all benefits management-related areas that profit from dedicated control mechanisms.

In the following sections, we use this framework as the underlying theoretical foundation to develop our design principles and testable propositions that greatly benefit from the seminal work in organizational control theory.

3 Research Method and Process

3.1 Design Science Research

Our study aims to develop a theory of design and action (Gregor, 2006, pp. 328–329) that tackles the challenges that organizations face in their attempts to successfully realize benefits. Hence, our study can be classified as design science research (Baskerville, 2008; Hevner, March, Park, & Ram, 2004; March & Smith, 1995; March & Storey, 2008). As a problem-solving paradigm (Hevner et al., 2004, p. 76) that is also prescription-driven, design science research aims to design purposeful artifacts synthesizing communicable, justifiable, and cumulatively developed knowledge (Gregor & Jones, 2007, p. 313). In this endeavor, it focuses on serving human purposes (March & Smith, 1995, p. 253) and providing solutions to management problems (Gregor & Jones, 2007, p. 313; Winter, 2008, p. 471). To this end, we strive to propose a theory of design and action – Gregor's (2006 pp. 328–329) theory type V.

Despite the growing popularity and acknowledgment of design science in IS research (Gregor & Hevner, 2013; Gregory & Muntermann, 2014; Hevner & Chatterjee, 2010; Hevner et al., 2004), there is still no commonly accepted way to design, structure, and document design theories (Baskerville & Pries-Heje, 2010, p. 272; Fischer, Winter, & Wortmann, 2010, p. 388). In addition, no consensus exists on whether the results of design science may be called theories. To this end, we are in line with Gregor & Jones (2007), who adopt a broad view of a theory that encompasses "conjectures, models, frameworks, or body of knowledge-terms that are used in connection with design science" (Gregor & Jones, 2007, p. 314). Thus, in this essay, we also adopt their recommendations, which delineate eight structural components of a design theory (Gregor & Jones, 2007, p. 322). We regard them as appropriate since their structure (i) aims to systematically specify design knowledge (Gregor & Jones, 2007, p. 314), while it has recently (ii) been successfully applied in developing design theories (e.g., Arazy, Kumar, & Shapira, 2010; Lepmets, Mesquida, Cater-Steel, Mas, & Ras, 2014; Reinecke & Bernstein, 2013; Zhang, Venkatesh, & Brown, 2011).

3.2 Research Process

We organized our research process in four different phases: First, we collected and analyzed the existing literature on BM to enrich our understanding of its body of knowledge and identify possible areas of improvement. In conjunction with these findings, we performed an exploratory field study based on interviews in order to gain empirical insights into the problem domain of effective BM implementations in organizations (Klein & Myers, 1999, p. 72). Based on the results of both research phases, we proceeded with the design theory construction phase. There we applied the findings from both previous phases to derive a list of meta-requirements, which included the identified core issues. To tackle these issues, we developed appropriate design

principles and testable design propositions in accordance with Gregor & Jones (2007) and Walls et al. (1992), which we tried to ground theoretically by establishing references to adjacent research streams (i. e. organizational control theory). In doing so, we subjected our findings to three cycles of construction/refinement and evaluation. These involved discussing our findings in a series of subject-matter-expert interviews in order to corroborate our design theory's validity and utility (Hevner et al., 2004; March & Smith, 1995; Markus, Majchrzak, & Gasser, 2002). Furthermore, we draw on the findings of our literature review to apply additional justificatory knowledge (Gregor & Jones, 2007, pp. 327–328). An overview of the research process is depicted in Figure 4-3 and will be discussed in more detail in the following.

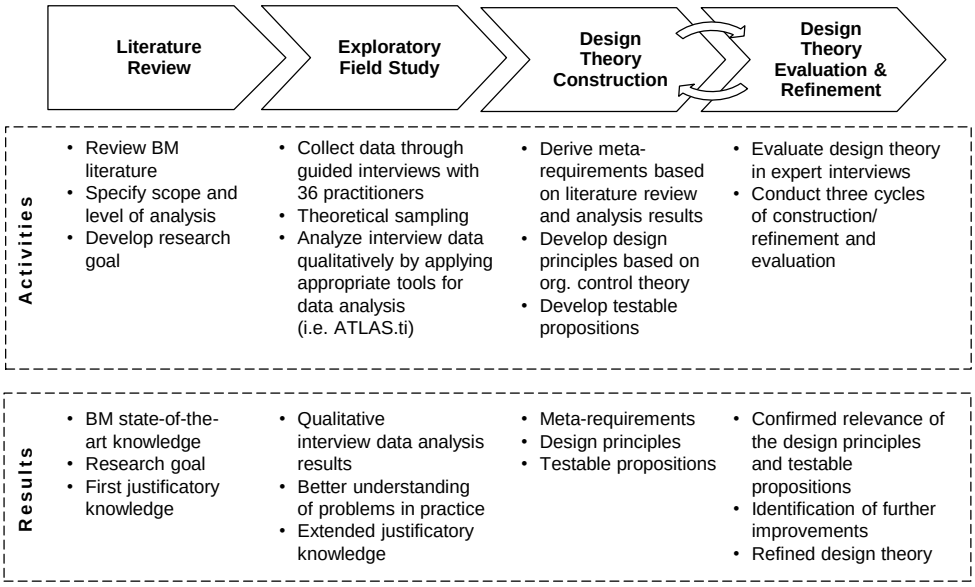

Figure 4-3. Research process overview

As a first step, we performed a literature review of the existing knowledge base on BM (Hesselmann & Mohan, 2014), which we extended with the latest literature to ensure that we have correctly identified the problem. We conducted the literature review by systematically classifying and analyzing all papers (Fettke, 2006; Webster & Watson, 2002), resulting in an overview of existing BM research and avenues for future research. Among others, we found that many organizations had no formal BM process in place and only few studies addressed contextual factors such as the organizational culture and business/IT relationship with influence on BM. Furthermore, detailed guidelines on successful BM implementations were also missing, while concepts and mechanisms that help to control the realization and monitoring of benefits were mostly omitted. These results provided first justificatory knowledge for our design theory (Gregor & Jones, 2007, pp. 327–328), and helped to develop the interview guide for the subsequent phase.

At the beginning of the exploratory field study, we collected data by carrying out guided interviews with BM stakeholders at top management, middle management, and project management levels (Yin, 2002, p. 89). The sample included 36 interviewees from 29 organizations

operating in the insurance, banking, logistics, IT provision, energy, and retail market industries (see Appendix A for further information). As the maturity of benefits management was expected to be low in most organizations, we opted for theoretical sampling rather than a random sample (Eisenhardt & Graebner, 2007, p. 27). We used existing literature – especially the Cranfield BM process model (see Section 2) – to strengthen the internal validity of our research (Eisenhardt, 1989, p. 536). Generally, each interview lasted 60 to 90 minutes. They were kicked off by asking the interviewees how benefits were defined, evaluated, planned, realized, and controlled within their organization. Furthermore, they were asked how satisfied they were with each of the benefits' lifecycle steps and which particular factors they regard as substantial in constituting an effective BM approach. Interviewees were also questioned about cultural and social factors that affect BM. An overview of the interview guide is provided in Appendix B. All interviews were conducted face-to-face, audio-taped, transcribed, and approved by the interviewees. We transcribed the interviews by following a denaturalized approach, in which accuracy focuses on the meanings and perceptions of the interviewees, rather than on accents or involuntary vocalization (Oliver, Serovich, & Mason, 2005, p. 1277). The approval of the interview transcripts ensured that interviewees' thinking was accurately represented (Weston et al., 2001, p. 394). The interview data were analyzed using the qualitative analysis software atlas.ti (Miles & Huberman, 1984). Overall, the results confirmed that many organizations consider "managing and realizing benefits" to be an important and relevant business problem. Furthermore, many issues found in the prior literature review were stressed by the interviewees, such as uncertainty at the general implementation of BM, as well as in conjunction with the organizational culture and business/IT relationship.

Based on the findings from both previous research phases we conducted three iterative and incremental cycles of construction/refinement and evaluation of the design theory to ensure and demonstrate its utility and validity (Hevner et al., 2004, p. 85). In the first cycle, the design theory was constructed and consequently evaluated by subject-matter experts.[4] Furthermore, workshops and training sessions on benefits management were conducted with practitioners, which provided further insights into the necessities of practice (for further details, see Appendix A-D).

We refined the design theory in the second cycle by conducting a second in-depth analysis of our data acquired from the exploratory field study. Moreover, literature from neighboring disciplines (i.e., the resource-based view and the agency theory) was analyzed to provide a stronger theoretical foundation for our theory. Afterwards we evaluated the design theory a

[4] The initial design theory construction and its evaluation was exclusively conducted by Braun 2010. See Appendix A-D for more details.

second time during interviews with subject-matter experts (for further details, see Appendix E-G).

In the third cycle, we attempted to include some radical changes as we were not yet satisfied with the after-evaluation state of our design theory. We found organizational control theory to comprise meaningful frameworks and practices for BM, and thus conducted a theoretical integration between both subjects. Consequently, we refined the underlying meta-requirements, and derived new design principles and testable propositions. Finally, we conducted further interviews with experts from practice to evaluate the relevance and utility of our findings (for further details, see Appendix H-I).

With this approach, we ensured that each construction cycle is deeply rooted in the extant body of knowledge on BM, the empirical findings gathered during the field study, and the interviews in the evaluation cycles. Whenever possible, exemplary links to the data are shown whenever possible in the following sections. In Section 5, a detailed description of the evaluation is provided; its cycles are summarized in Table 4-4.

4 A Design Theory for Benefits Management

The following section presents our formalized design theory according to Gregor and Jones (2007, p. 322), who recommend the following eight components: (I) purpose and scope, (II) constructs, (III) principles of form and function, (IV) artifact mutability, (V) testable propositions, (VI) justificatory knowledge, (VII) principles of implementation, and (VIII) expository instantiation. Subsequently we present the purpose and scope of our BM design theory by describing six meta-requirements, which are followed by the principles of form and function. The latter are represented by eight design principles and are supported by justificatory knowledge and testable propositions. In the subsequent essay one possible expository instantiation of this design theory is presented, along with principles of implementation and a discussion of artifact mutability.

4.1 Purpose and Scope (Meta-Requirements)

We developed appropriate meta-requirements (MR) based on extant BM literature and our exploratory field study; each MR is complemented with meaningful interview quotes from the latter. The MRs are presented successively in the following paragraphs:

As depicted in the theoretical foundations, the benefits from IS/IT projects are based on the organizational change that accompanies the implementation of the technical solution (Markus, 2004, p. 6; Peppard & Ward, 2005, p. 56). However, typically the IT project team does not manage this organizational change in the project's lifetime, but rather focusses on the delivery of the technical solution (Eason, 2001, p. 324; Markus, 2004, p. 7; Ward & Elvin, 1999, p. 205). Likewise, the business expects the IT project team to realize the benefits of the project that are described in the business case. Consequently, many IS/IT projects are missing someone accountable and competent for managing the organizational change (Benjamin & Levinson, 1993, p. 32), which is a prerequisite for benefits realization. Our interview partners confirmed the described dilemma. A head of organizational development (insurance industry) stressed: "In future, from the beginning of the project, thoughts on the form and point in time of emerging benefits should play a major role […] and binding accountabilities should be established at the project side." In addition, a CIO (logistics industry) emphasized: "[…] especially when several units are involved, [benefits analysis, planning, and realization] become a very demanding task." Consequently, we conclude:

MR1: A BM artefact should hold someone accountable for benefits realization.

Until today the adoption of existing BM frameworks and methodologies in organizations remains rather low (Ashurst et al., 2008, p. 367; Lin, Pervan, & Lin, 2004, p. 11; Ward et al., 2007, p. 4). As a consequence, there is only limited experience and maturity in practice, leading to rather chaotic benefits realization initiatives, which only plan for the IS/IT project, but

not for the subsequent business changes (Markus & Benjamin, 1997, p. 117; Ward & Elvin, 1999, p. 205). Most organizations miss a reliable approach to benefits realization that would allow for the replication of a successful IS/IT project (Ashurst et al., 2008, p. 365). This claim was supported by our informants, who stressed that stakeholders find it difficult to plan and realize benefits on an operative level, leading to an uncoordinated benefits realization without any guarantee of success. A head of controlling (insurance industry) stated: "There should be goal guidance until the benefits are realized." In addition, significant uncertainty exists regarding what needs to be done. Appropriate methods and processes are needed to encourage and guide stakeholders in planning benefits realization, as a member of the board of management (insurance industry) stressed: "Benefits controllers require a toolkit, which consists of situational approaches to benefits controlling, instruments, procedures, symptoms, advices, etc. Regular benefits approaches are often too theoretical and are not helpful in practice." Thus, we state:

MR2: A BM artifact should ensure a reliable benefits realization.

At its core, BM has implications for an organization's stakeholders, as it requires the implementation of new processes, responsibilities, and methods (Ashurst et al., 2008, p. 363; Ward & Daniel, 2006, pp. 134–135). In particular, it is about dealing with omissions and failures, such as bad investment decisions, unfavorable project implementations, and inefficient business process execution. For successful benefits realization, stakeholders not only have to accept a new IT solution and change their behavior (Jurison, 1996, p. 271; Martinsons & Chong, 1999, pp. 142–143), but their performance and behavior also need to be transparent to allow the detection of failures and inefficiencies. Also, the identification and planning of benefits is already linked to required additional stakeholders efforts (Flak & Solli-Sæther, 2013, p. 2069; Päivärinta et al., 2007, pp. 9–10). Consequently, most affected stakeholders have no commitment to BM or even show resistance to it. However, the identification and planning of benefits is already based on a proper understanding of business processes; consequently it requires sufficient process knowhow and commitment in the project team. Hence, the successful realization of benefits is jeopardized without increased stakeholder commitment. This insight is also reflected in our interviews, as a head of controlling (insurance industry) confirmed: "It is critical to secure the commitment of relevant benefit donors […]. The project manager alone cannot realize any benefit; he or she rather establishes the prerequisites for benefits realization." Meanwhile a business value analyst (IT provision industry) highlighted: "It is often quite difficult to find stakeholders with appropriate process knowhow and whose perspectives are not just focused on their own role in the organization." Thus, we derived:

MR3: A BM artifact should achieve stakeholder commitment.

In general, benefits differ between being tangible and intangible. While the former are rather easy to measure with an objective (often financial) measure, the latter can only be subjectively assessed by applying qualitative measures (Dutta, 2004, p. 389; Murphy & Simon, 2002, p. 318). However, for most organizations it is hard to measure benefits in a reliably way. Lin & Pervan (2003, p. 22) investigated benefits realization in large Australian organizations and found that over half of them could not say whether they achieved an anticipated benefit or not. In addition, the beneficial outcome of an IS/IT project is often not manifested and measurable directly after its implementation, but after several months or years (Jurison, 1996, pp. 264–265; Kohli & Grover, 2008, p. 26). For instance, when a new IT solution is implemented, positive outcomes are only to be expected when it is fully operational and its users have become experienced in using it (Ashurst et al., 2008, p. 356; Markus, 2004, p. 14). In our field study we also found that many interviewees mentioned the relevance and simultaneous difficulty in maintaining the transparency of benefits realization throughout the project. Participants continuously emphasized how demanding this task is, as a process manager (logistics industry) noted: "Intangible benefit factors are important but difficult to measure." In addition, a head of project management (insurance industry) stated: "Transparent reporting is of major importance for successful benefits management." A head of controlling (insurance industry) extended this claim: "An important factor is a transparent benefits concept […] that illuminates where changes take place and which potential they possess." Moreover, from the academics' side, the importance of dealing with this issue was pointed out, mainly because of its relevance to control and track the status of the benefits realization (Braun, Mohan, & Ahlemann, 2010, p. 9). We conclude:

MR4: A BM artifact should create transparency to benefits realization.

IS/IT investments are naturally accompanied by a particular degree of uncertainty, as identical IS/IT solutions can lead to different results, even in quite similar organizational settings (Orlikowski, 1992, pp. 421–423; Sahay & Robey, 1996, p. 279). Furthermore, IS/IT projects' outcomes are more emergent than planned over the system's lifecycle (Orlikowski, 1996, p. 89), making the initial business case rather unreliable. Such uncertainty is accompanied by additional organizational factors with influence on benefits realization, such as a fluctuation of relevant stakeholders, changes in power relationships, and resistance to change (Love, Irani, Standing, Lin, & Burn, 2005). The dynamic environment makes the planning and realization of benefits quite difficult. Moreover, the problem of their volatility adds to such changing environmental conditions and inadequate estimates. Changchit et al. (1998, p. 145) stress that the "dynamic nature of IS, the variety of technical options readily available, the uncertainties of projected pay-offs, [and] the potential presence of intangible benefits and stakeholders" make the identification of benefits rather elusive. Our informants confirmed these problems,

as they particularly emphasized the long time span between benefits analysis and benefits realization. As a consequence, benefits become volatile and often take on a new form, rendering earlier defined benefits obsolete because they are no longer realizable. As a CIO (logistics industry) phrased it: "Especially projects that take over a year to complete often fall victim to change due to their dynamic environment or further knowledge acquisition." A member of the board of management (logistics industry) confirmed: "Whenever changes emerge, our benefit estimations have to be reassessed. However, there is no regulation stating that benefits have to be assessed in regular intervals. Changes to the project, and benefits that emerge during project execution, also require a new benefits analysis." Thus, we propose:

> *MR5: A BM artifact should account for changing environmental conditions and benefits volatility.*

Isolated departments that exclusively communicate with each other and resemble "huge grain silos in a lonely landscape" (Schütz & Bloch, 2006, p. 32) are a typical shortcoming in many organizations. This holds particularly true for the relationship between business and IT, which is traditionally affected by "cultural differences between these two groupings" (Peppard & Ward, 1999, p. 30). In terms of BM, prior literature as well as our interview data stress that benefits can rarely be implemented through a single department. An implicit prerequisite for the realization if benefits is the simultaneous understanding of business processes and a new IS/IT solution's features, making the combination of business and IT competencies essential (Peppard, Lambert, & Edwards, 2000; Soh & Markus, 1995). Consequently, BM is an interdepartmental approach that only reaches its full potential when stakeholders overcome such "departmental egoism" (Ashurst et al., 2008, p. 366). This insight has to be widely understood by the stakeholders in order to ultimately achieve a close collaboration between the involved departments. Also, several informants stressed the need for a mutual understanding of BM's and consequently the project's success. As a CIO (energy industry) stressed: "A major difficulty is that many business units don't want any support from IT: If there is much potential for IT to make improvements, a certain degree of resistance to change becomes visible – especially if this necessitates changes in the business processes." Furthermore, a head of controlling (insurance industry) emphasized: "A basic attitude toward benefits has to be fostered – does the particular operation serve to create a benefit?" Therefore, we conclude:

> *MR6: A BM artifact should overcome departmental isolation.*

In summary, the following six meta-requirements were derived, based on the extant BM literature and corroborated by our exploratory field study:

Table 4-1. Overview of BM meta-requirements

Meta-requirement
MR1: A BM artifact should hold someone accountable for benefits realization.
MR2: A BM artifact should ensure a reliable benefits realization.
MR3: A BM artifact should achieve stakeholder commitment.
MR4: A BM artifact should create transparency to benefits realization.
MR5: A BM artifact should account for changing environmental conditions and benefits volatility.
MR6: A BM artifact should overcome departmental isolation.

4.2 Principles of Form and Function (Design Principles), Justificatory Knowledge, and Testable Propositions

Taking Flamholtz et al. (1985, p. 38) organizational control "framework" (see Figure 4-2) into account, we derived appropriate design principles (DP) based on our meta-requirements and merged them with our justificatory knowledge from prior literature and organizational control theory. In doing so, we grouped them into core control system principles and control context principles. Table 4-2 summarizes the eight design principles along with the applied organizational control mechanisms, and determines the relationship to the meta-requirements. In the subsequent paragraphs, we describe each design principle in detail along with the associated testable propositions (TPs) that link it to the addressed meta-requirements.

Table 4-2. Overview of BM design principles

Core Control System (CCS) Principles	
Principle	**Organizational Control Mechanisms**
Principle CCS1: Establish an accountability framework for benefits realization *[Addressed MRs: 1, 3, 6]*	Delegation of decision making, division of roles (Abernethy & Vagnoni, 2004; Laat, 2007; Nieminen & Lehtonen, 2008)
Principle CCS2: Establish a mechanism for dedicated benefits planning *[Addressed MRs: 2, 4]*	Organizational goals, project plans (Flamholtz et al., 1985; Kirsch, 1997; Nieminen & Lehtonen, 2008)
Principle CCS3: Define benefits-related goals and incentives *[Addressed MRs: 3, 6]*	Attachment of rewards / compensations, goal setting (Bonner & Sprinkle, 2002; Flamholtz et al., 1985; French, Kay, & Meyer, 1966; Ouchi, 1980)
Principle CCS4: Conduct benefits measurement on a regular basis *[Addressed MRs: 2, 4, 5]*	Formal meetings, performance measurement, reporting (Cammann, 1976; Flamholtz, 1979; Flamholtz et al., 1985; Nieminen & Lehtonen, 2008; Prakash & Rappaport, 1977)

Control Context (CC) Principles	
Principle	**Organizational Control Mechanisms**
Principle CC1: Proactively communicate all relevant information on benefits management *[Addressed MRs: 3, 6]*	Business / IT project manager selection, training, communication channels and platforms, co-location (Abernethy & Wai Fong Chua, 1996; Alvesson & Kärreman, 2004; Nieminen & Lehtonen, 2008; Ouchi, 1979)
Principle CC2: Cultivate cross-departmental collaboration *[Addressed MRs: 3, 6]*	Core values, discussions, informal events, joint meetings, mission statement, team control (peer pressure), vision (J. Barker, 1993; Birnberg & Snodgrass, 1988; Flamholtz, 1996b; Nieminen & Lehtonen, 2008; Ouchi, 1979, 1980)
Principle CC3: Implement dedicated benefits change management *[Addressed MRs: 5]*	Monitoring external environment, adaptation to changes (Flamholtz, 1996b; Flamholtz et al., 1985; Kloot, 1997)
Principle CC4: Implement benefits management in alignment with the organization's project management maturity *[Addressed MRs: 3, 4]*	Cost-pressure, industry, organization size and type (Flamholtz, 1996a; Flamholtz et al., 1985)

Principle CCS1: Establish an accountability framework for benefits realization

An accountability framework is established, ensuring that the accountabilities of the analysis, planning, and realization of benefits from IS/IT investments are clearly assigned. Therefore, specific roles for benefits management are designed and assigned to stakeholders, including accountabilities for benefits realization (Abernethy & Vagnoni, 2004, p. 210; Laat, 2007, pp. 167–168; Nieminen & Lehtonen, 2008, p. 67). Typically, the project sponsor is ultimately accountable for the achievement of all anticipated benefits (1st order ownership). If benefits can only be realized via complex cause-effect chains, spanning multiple areas of responsibility, additional stakeholders may be held accountable for benefit realization (2nd order benefits ownership). In any case, the 1st order benefits owner is accountable for the ultimate benefits realization and has to ensure its coordination across organizational units (downstream of the cause-effect chain). This includes a proper analysis of benefits, realization planning, benefits measurement, and the steering of realization (CCS 2, 4). Operative work may be delegated, but not accountability. Further BM-specific roles include for example a business project manager and an IT project manager, both planning and coordinating the changes and implementations in their functional area. This accountability framework ensures that every IS/IT project has someone accountable for organizational changes. Furthermore, making top to middle managers accountable for benefits increases their interest in raising their own staff's commitment, as well as their intention toward cross-departmental collaboration with the IT department to leverage benefits realization (Dupont & Eskerod, 2016, p. 785; Ifinedo, 2008, p. 555). Consequently, we derived the following propositions:

TP1a: An accountability framework for benefits realization will ensure that every IS/IT project has someone accountable for benefits realization.

TP1b: An accountability framework for benefits realization will lead to increased stakeholder commitment.

TP1c: An accountability framework for benefits realization will help to overcome departmental isolation.

Principle CCS2: Establish a mechanism for dedicated benefits planning

Successful benefits realization becomes replicable through a standardized process of planning how the benefits will be realized. Planning is applied as an ex-ante form of control that provides the required information to guide the actions of all involved stakeholders (Flamholtz et al., 1985, p. 40; Kirsch, 1997, p. 227; Nieminen & Lehtonen, 2008, p. 69). For this purpose, each new IS/IT project starts with a dedicated planning workshop to clarify the organizational goals and ensure that these are understood and accepted by all involved stakeholders. Furthermore, these goals help to motivate the stakeholders' performance and serve as a benchmark to assess the performance against later (Flamholtz et al., 1985, p. 43). Investment projects are not approved and budgets are not freed without a (preliminary) benefits realization plan that is created in this workshop. In particular, organizational change management has to be a part of the benefits realization plan, for which the appropriate business managers are accountable. General accountabilities for benefits realization (CCS 1) are translated into manageable work packages, covering all activities to leverage the IS/IT investment, so that all stakeholders receive guidance on how to act (Flamholtz et al., 1985, p. 40; Kirsch, 1997, p. 227). This way benefits planning is harmonized among IS/IT projects, which increases the reliability of successful benefits realization. In order to allow for an efficient implementation, benefits realization has to be measured regularly (CCS 4). Thus, ensuring a sound benefits realization plan requires a proper analysis of all anticipated benefits, which facilitates the creation of benefits transparency throughout the project. Thus we conclude:

TP2a: A mechanism for dedicated benefits planning will ensure reliable benefits realization.

TP2b: A mechanism for dedicated benefits planning will create transparency to benefits realization.

Principle CCS3: Define benefits-related goals and incentives

The general purpose of incentives and compensations is to motivate individuals, and to increase their performance by achieving goal congruence between their own goals and organizational ones (Bonner & Sprinkle, 2002, p. 310; Eisenhardt, 1985, p. 137; Milne, 2007, p. 30). Thus, stakeholders with high relevance to benefits realization (e.g., through process

knowledge, decision rights, etc.) are committed to benefits realization through clear goals based on a thorough benefits analysis and planning (CCS 2). Such benefit-related goals are jointly defined, documented, and approved by all stakeholders involved and form the basis of the final investment decision. Stakeholders have clear incentives for achieving their benefit-related goals; either by means of personal rewards (promotion, recognition, or at least compensation) and /or the direct exploitation of realized benefits (Flamholtz et al., 1985, pp. 43–44). Thus, even potential negative performance and resisting behavior becomes decreased (Ouchi, 1980, p. 134). The fulfillment of the goals is monitored (e.g., through benefits measurement (CCS 4)) and the rewards are only granted after successful benefits realization. The measuring of benefits realization subsequently requires proper planning (CCS 2) as well as clear metrics and performance indicators (CCS 4). While the planning mechanism that motivates stakeholders is initially being an ex-ante control, incentives and compensations ensure a continuing motivation (Baker, Jensen, & Murphy, 1988, p. 597; Ouchi, 1980, p. 134). Furthermore, the participatory approach in setting benefits-related goals increases the involved stakeholders' acceptance and commitment toward these established goals (Flamholtz et al., 1985, p. 40; French et al., 1966, p. 18). In summary, we propose:

> *TP3a: Defined benefits-related goals and incentives will lead to an increased stakeholder commitment.*
>
> *TP3b: Defined benefits-related goals and incentives will help to overcome departmental isolation.*

Principle CCS4: Conduct benefits measurement on a regular basis

Measuring benefits on a regular basis provides an informational as well as a processual behavior-steering function (Flamholtz, 1979, p. 54). On the one hand, benefits measurement methods are informational by enabling stakeholders to monitor in how far goals have been achieved and subsequently to take corrective measures whenever required. On the other hand, they are processual by providing a sequence of measuring activities (Flamholtz, 1979, p. 54). Benefit measurement methods include the continuous development and improvement of standard benefits (benefit taxonomy) as well as dedicated metrics for benefit measurement. Both mechanisms are particularly helpful when measuring benefits with a high degree of volatility. In addition, formal meetings of the project team (including accountable business and IT stakeholders) take place in regular intervals to ensure consistent exchanges of knowledge and sufficient management support (Nieminen & Lehtonen, 2008, pp. 67–68). From a behavior-steering perspective, benefit measuring also represents a stimulus to influence stakeholders' behavior in organizations through the measuring process per se (Cammann, 1976, p. 311; Flamholtz, 1979, p. 54). The awareness that benefit measuring takes place and provides transparency to goal achievements already affects stakeholders' performance and attitudes (Flamholtz, 1996b,

p. 601; Prakash & Rappaport, 1977, p. 31). However, its effectiveness critically depends on the measuring methods' validity and reliability (Flamholtz et al., 1985, p. 41), making sound instruments essential. Thus we derived:

> *TP4a: Benefits measurement on a regular basis will ensure reliable benefits realization.*
>
> *TP4b: Benefits measurement on a regular basis will create transparency to benefits realization.*
>
> *TP4c: Benefits measurement on a regular basis will account for changing environmental conditions and benefits volatility.*

Principle CC1: Proactively communicate all relevant information on benefits management

The organizational structure contributes to an organization-wide recognition of the complex cause-effect chains that underlie benefits management by encouraging certain types of information exchange, contact, and relationships among departments (Abernethy & Wai Fong Chua, 1996; Alvesson & Kärreman, 2004). Dedicated communication channels and platforms proactively support stakeholders in understanding that most efficiency gains resulting from IS/IT investments can only be implemented when IT departments and business departments jointly manage benefits. They recognize that benefits realization means translating features of IS/IT into sustainable benefits via complex cause-effect chains, involving changes in employee competencies, employee behavior, and organizational processes, which often involve various organizational units. Also, each new employee on management level is given dedicated management training This training includes explanations of the organizational relevance of business IT collaboration and the advantages of process organization (departing from a thinking in independent functional units). Furthermore, to increase business IT collaboration and mutual appreciation for each other, a co-location concept is used; IT employees with business-related tasks (e.g., enterprise architects, software developers, etc.) are located in the business departments next to their business colleagues, providing both sides with a better understanding of the respective domains. Based on these platforms, training, and procedures, the understanding of benefits realization is facilitated and its implications for stakeholders become more transparent (Clegg et al., 1997, p. 860; Marchand, Kettinger, & Rollins, 2000, p. 71). Consequently, stakeholder commitment is increased while departments are more encouraged to cooperate across functional boundaries. In summary, we propose:

> *TP5a: Proactive communication of BM-related information will lead to increased stakeholder commitment.*

TP5b: Proactive communication of BM-related information will help to overcome departmental isolation.

Principle CC2: Cultivate cross-departmental collaboration

Organizational culture operates as clan control, applied to socialize individuals, groups, or even departments according to common norms, beliefs, and values (Birnberg & Snodgrass, 1988, p. 449; Ouchi, 1979, p. 838). It fosters goal congruence among stakeholders and cross-departmental collaboration, with several control mechanisms against traditional threats to benefits realization. For instance, according to most organizations' explicit values and socialization, a successful departmental unit and manager is held in high regard (Flamholtz, 1996b, p. 606). Consequently, departmental heads and managers value the achievement of their *own* individual goals and subsequent benefits higher than organizational ones, as they do not perceive any ownership of these organizational goals and benefits (Flamholtz, 1979, p. 51). To achieve a higher degree of goal congruence, the traditional values and socialization are carried over to ones that encourage the achievement of benefits on the organizational level (even at the expense of the own department). Therefore, cross-departmental collaboration is anchored in organizational norms and values through regular joint meetings and workshops on benefits realization, informal events, seamless information flow, open and honest communication, availability and accessibility, and benefits-related citizenship behavior (J. Barker, 1993, p. 420; Nieminen & Lehtonen, 2008, p. 68; Ouchi, 1980, p. 138). Consequently, the planning and realization of benefits also take place in a collaborative environment involving all affected business and IT landscapes, in which mutual values and beliefs ensure harmonic interests on all sides and prevent opportunistic behavior (Ouchi, 1980, p. 138). Thus, we conclude:

TP6a: Cross-departmental collaboration will lead to increased stakeholder commitment.

TP6b: Cross-departmental collaboration will help overcome departmental isolation.

Principle CC3: Implement dedicated benefits change management

IS/IT projects are typically performed in a dynamic environment, which might for example cause changes to project goals, task characteristics, team settings, or involved business units (Kirsch, 2004, p. 376). For instance, a powerful environmental factor is new / changing demands from customers and clients (Ouchi, 1977, p. 108), which affect the organizational strategy and subsequently ongoing and future IS/IT projects as means for implementation. Therefore, in addition to measuring the benefits themselves (CCS 4), changes in the environment in which an IS/IT investment takes place are continuously monitored and require appropriate actions (Flamholtz, 1996b, p. 599; Flamholtz et al., 1985, p. 46; Kloot, 1997, pp. 54–55). When

anticipated benefits are no longer implementable due to changed contextual variables, a defined benefit change management process is triggered. This process ensures that all relevant stakeholders reassess the situation and adjust their benefits planning (CCS 2), realization, and measurement (CCS 4) accordingly. This can even lead to new goals and incentives for all parties involved (CCS 3) and requires formal approval by the (top) management. If the main benefits are no longer realizable, the IS/IT project may be terminated. Consequently, we propose:

> *TP7: Dedicated benefits change management helps to account for changing environmental conditions and benefits volatility.*

Principle CC4: Implement benefits management in alignment with the organization's project management maturity

An organization's characteristics, i.e. its size, industry, market competition, etc. typically influence the degree of project management maturity that prevails there (Cooke-Davies & Arzymanow, 2003, pp. 477–478; Kwak & Anbari, 2009, p. 436; R. Turner & Ledwith, 2016, p. 16). For instance, organizations operating in a market with low competition and without any constrains to increase their IS/IT project's success or reduce costs, tend to allow for a particular degree of "slack" and inefficiency (Leibenstein, 1966, p. 412), which manifest in immature project management practices such as rudimentary project planning, infrequent performance evaluations, and non-transparent project progress. Here, the implementation of benefits-related control mechanisms such as benefit accountabilities, detailed measuring practices, and frequent performance evaluations would create a high degree of resistance among stakeholders, as they are not used to such professional control mechanisms (Flamholtz, 1996a, pp. 150–152; Flamholtz et al., 1985, p. 45). Therefore, appropriate alignment between BM and the organization's project management maturity should be accomplished. In case of high immaturity, organizations would better start with simple benefits planning (CCS 2) and periodic measuring (CCS 4), to guide stakeholders' activities and create initial transparency. Conversely, mature project management facilitates the development of sound benefits metrics, detailed and regular reporting, as well as benefits-related accountabilities. Thus, we summarize:

> *TP8a: Alignment between benefits management and the organization's project management maturity will lead to increased stakeholder commitment.*
>
> *TP8b: Alignment between benefits management and the organization's project management maturity will create transparency to benefits realization.*

Table 4-3 summarizes the testable propositions, which determine the relationship between each design principle and the meta-requirements.

Table 4-3. Overview of BM testable propositions

Testable Proposition
TP1a: An accountability framework for benefits realization will ensure that every IS/IT project has someone accountable for benefits realization. TP1b: An accountability framework for benefits realization will lead to increased stakeholder commitment. TP1c: An accountability framework for benefits realization will help to overcome departmental isolation.
TP2a: A mechanism for dedicated benefits planning will ensure reliable benefits realization. TP2b: A mechanism for dedicated benefits planning will create transparency to benefits realization.
TP3a: Defined benefits-related goals and incentives will lead to increased stakeholder commitment. TP3b: Defined benefits-related goals and incentives will help to overcome departmental isolation.
TP4a: Benefits measurement on a regular basis will ensure reliable benefits realization. TP4b: Benefits measurement on a regular basis will create transparency to benefits realization. TP4c: Benefits measurement on a regular basis will account for changing environmental conditions and benefits volatility.
TP5a: Proactive communication of BM-related information will lead to increased stakeholder commitment. TP5b: Proactive communication of BM-related information will help to overcome departmental isolation.
TP6a: Cross-departmental collaboration will lead to increased stakeholder commitment. TP6b: Cross-departmental collaboration will help to overcome departmental isolation.
TP7: Dedicated benefits change management helps to account for changing environmental conditions and benefits volatility.
TP8a: Alignment between benefits management and the organization’s project management maturity will lead to increased stakeholder commitment. TP8b: Alignment between benefits management and the organization’s project management maturity will create transparency to benefits realization.

5 Evaluation

We evaluated our design theory in adherence to Hevner et al.'s (2004, pp. 85–87) guideline 4 (research contribution) for design science research in three iterative cycles of construction/refinement and evaluation. In doing so, we gathered practitioners' feedback on the meta-requirements, design principles, and testable propositions to ensure the validity and applicability of our recommendations in practice. Following an observational approach, we performed a questionnaire-based evaluation by conducting interviews with subject-matter experts for each version of the design theory, which resulted in quantitative evaluation feedback. The first cycle describes the initial construction and subsequent evaluation of our BM design theory in four expert interviews. In the second cycle, we performed another in-depth analysis of our field study data, which complemented the refinement of the BM design theory; this was evaluated once more in interviews with ten subject-matter experts. Finally, as we were not yet satisfied with the after-evaluation state of our design theory and found organizational control theory to be a meaningful complement, we conducted a theoretical integration to transfer meaning frameworks and practices to BM. Afterwards, we conducted a final evaluation of the design theory. The results in Table 4-4 provide an overview of the BM design theory's evaluation cycles.

Table 4-4: BM design theory evaluation cycles

Cycle	Construction / Refinement	Evaluation
1	• Cranfield process model as initial framework • 2nd level of management added (portfolio level) • Accountability framework added • Adoption and extension of Cranfield process model stages • Integration with project portfolio management • Emphasis of top management commitment and cultural change	• Cranfield process model useful but very specific • DPs too concrete, leaving too little room for organization-specific design • Learning regarding benefits identification and analysis not sufficiently represented • Benefits change management is missing
2	• DP for organizational learning added • Reformulation of DPs toward more abstract statements • Resource-based view and agency theory used for partial theoretical underpinning • DP for benefits change management added	• General confirmation of the design principles and testable proposition's relevance and comprehensiveness • Exclusion of a few testable propositions required to achieve a higher degree of parsimony and coherence between the remaining ones • Suggestions to focus more on organizational culture

Cycle	Construction / Refinement	Evaluation
		• Communication and explanation of BM throughout organization not sufficiently addressed
3	• Theoretical integration with organizational control theory • Adjustment of DPs in conjunction to core control system and control context • Integration of adjacent meta-requirements for a higher distinction between the remaining ones • DP with focus on BM-related organizational communication added • DP for alignment between BM and project management maturity added • Adjustment of testable propositions	• Strong confirmation on the meta-requirements' relevance and comprehensiveness • High consensus on the design principles' and testable propositions applicability and validity

In the final evaluation of our design theory, interviewees had to judge the (1) meta-requirements, (2) the design principles' utility (i.e. relevance and purpose), their applicability (Fettke & Loos, 2003, p. 81; Hevner et al., 2004, p. 87), and (3) the validity of the testable propositions (i.e. the design principles' contribution to the meta-requirements) on a five-point Likert scale. This scale ranges from 5 (fully agree) to 1 (do not agree) in order to indicate a respondent's level of agreement with a particular statement. Furthermore, several open questions were added to identify further meta-requirements, design principles, or relevant cause-effect-relationships. On average, the evaluation of each meta-requirement is 4.60, which implies that the interviewees agree with the presented meta-requirements. Furthermore, we interpret all of their standard deviations below 0.73 as a widespread agreement. The design principles' relevance and purpose is evaluated with an average of 4.48 and a maximum standard deviation of 0.76, which is considered a solid confirmation. Average feedback of the design principles' applicability is 4.16, with a standard deviation above 0.73, which we interpret as widespread consensus. The effectiveness of the design principles in supporting the meta-requirements is evaluated with an average value of 4.29, which is solid within the area of agreement. We particularly want to emphasize the high agreement on design principle CC4, which was added to this final version of the design theory: All interviewees stressed the importance of aligning BM with the organizations project management maturity too avoid early failures and resistance from stakeholders.

Table 4-5: Meta-requirement evaluation results

Meta-requirement		Average	Standard Deviation
MR1	A BM artifact should hold someone accountable for benefits realization.	4.86	0.35
MR2	A BM artifact should ensure a reliable benefits realization.	4.43	0.73
MR3	A BM artifact should achieve stakeholder commitment.	4.57	0.49
MR4	A BM artifact should create transparency to benefits realization.	4.29	0.45
MR5	A BM artifact should account for changing environmental conditions and benefits volatility.	4.71	0.45
MR6	A BM artifact should overcome departmental isolation.	4.71	0.45
Respondent's agreement with the relevance of the meta-requirement for BM measured using a five-point Likert scale.			

Table 4-6: Design principle evaluation results

Design Principle		Average	Standard Deviation
Core Control System Principles			
CCS1	Establish an accountability framework for benefits realization	4.71	0.45
CCS2	Establish a mechanism for dedicated benefits planning	4.57	0.49
CCS3	Define benefits-related goals and incentives	4.00	0.76
CCS4	Conduct benefits measurement on a regular basis	4.43	0.73
Control Context Principles			
CC1	Proactively communicate all relevant information on benefits management	4.43	0.73
CC2	Cultivate cross-departmental collaboration	4.43	0.73
CC3	Implement dedicated benefits change management	4.71	0.45
CC4	Implement benefits management in alignment with the organization's project management maturity	4.57	0.49
Respondents' agreement with the purposefulness and relevance of the design principle measured using a five-point Likert scale.			

6 Conclusion and Outlook

In this essay, we illuminated and addressed the practical problem of organizations' inability to manage and realize benefits from IS/IT investments. Despite the growing body of knowledge on BM, including some design-oriented approaches, many organizations have been unable to conduct BM effectively, which is partly grounded in the BM-related field of tension between business and IT. Based on extant BM literature and our exploratory field study we derived meta-requirements that represent current challenges in benefits realization. To address these appropriately, we utilized control mechanisms from organizational control theory to develop design principles and testable propositions that we subsequently evaluated in expert interviews. One interesting aspect of our design theory is the combination of core control mechanisms and control context mechanisms, including bureaucratic (formal) controls as well as socialization-based (informal) controls. While the former are easier to put into action in an organization, they can only control defined tasks and goals. However, as prior research illustrates, IS/IT projects are not static but embedded in a dynamic and complex environment, which also requires the application of specific contextual control mechanisms to address the subsequent changes for the project (Changchit et al., 1998; Kirsch, 2004; Orlikowski, 1996). We propose that our combination of dedicated control types addresses this issue and ensures a more sustainable and effective implementation of control mechanisms, which help to steer benefits realization from IS/IT projects toward success.

We consider our BM design theory a valuable theoretical contribution in that our design principles and especially testable propositions add to the nascent theoretical body of knowledge on BM. It enhances BM artifacts such as the Cranfield BM process model (Ward et al., 1996) while providing the following advantages: our principles affect the whole organization, enabling a rather comprehensive and sustainable impact. Furthermore, we tackle the challenging issue of organizational resistance to change with multiple design principles grounded in sophisticated concepts from organizational control theory, which have not been utilized for BM before. Additionally, we acknowledge that introducing benefits management with appropriate control mechanisms is ultimately a process of capability building that might take several years for an organization to complete. From a practical standpoint the set of design principles is intended as a high-level guide for organizations that supports the successful implementation and steering of benefits realization. In detail, our study helps organizations implement BM effectively, concentrating on those elements that really make a difference. Moreover, the design principles and testable propositions can be used as lenses to understand why an existing BM implementation is not delivering the anticipated benefits.

Despite the contributions it makes, our study has some limitations. First, we acknowledge that we cannot yet evaluated an expository instantiation of our design theory in a practical setting.

A realistic implementation would thus contribute to a further refinement of our BM design theory, and would demonstrate that the design is worth considering (Gregor & Jones, 2007, p. 329). Yet, Gregor & Jones (2007, p. 323) also state that the "construction of an instantiation as proof-of-concept and the development of specific methods for building further instantiations could come later." Second, methodological limitations might arise from the sole use of interviews, and from that fact that only very few organizations displayed advanced BM maturity. An evaluation in a multi case study setting might greatly contribute to our findings in the future.

Finally, our study offers several opportunities for future research. With the increasing maturity of BM in practice, we encourage future case study research for an instantiation of our design theory and to collect data from additional sources, such as documentation or observations (Yin, 2002) to corroborate the results of our investigation. As BM implementation efforts evolve over time, rich data on BM practices should become more readily available. Furthermore, as this study represents the first utilization of concepts from organizational control theory, we want to encourage scholars to continue research in this direction and improve the steering of benefits realization. This might also include a deeper analysis of the relation between core control mechanisms and context control mechanisms in the context of BM.

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Appendices

Appendix A: List of Interviews – Field Study (Cycle 1)

The following interview list is based on Braun (2010 pp. 188-189).

Interview no.	Role of Interviewee	Industry
1	Area Manager	Logistics
2	Process Manager	Logistics
3	Consultant Process Manager and Requirements Manager	Logistics
4	Project Manager	Insurance
5	Area Manager Operations	Insurance
6	Project Portfolio Manager	Insurance
7	CIO and Manager of I Controlling and Strategic Sourcing	Energy
8	Multi Project Manager	Insurance
9	Project Portfolio Manager	Insurance
10	Board of Management	Insurance
11	Manager Migration/IT	Insurance
12	Head of Internal Consulting	Energy
13	Head of Project Management	Insurance
14	Executive Board Member	Insurance
15	Head of Project and Requirement Management	Insurance
16	Head of IT Governance and IT Strategy	Energy
17	Executive Board Member	Insurance
18	Head of Operations	Insurance
19	CIO	Logistics
20	Team Member Operations	Insurance
21	Head of Operations	Insurance and Finance
22	Head of Organizational Development	Insurance
23	Head of Controlling	Insurance
24	Team Member Controlling	Logistics
25	Head of Organization Projects	Insurance
26	Area Manager Business Process Support	Finance
27	Executive Board Member	IT Consulting
28	Head of Strategic Management Consulting	Technology

Interview no.	**Role of Interviewee**	**Industry**
29	Area Manager IT	Insurance
30	Head of Infrastructure Projects and IT Security	Insurance
31	Business Unit Manager	Insurance
32	CIO, Area Manager IT	Retail Market
33	CIO, Area Manager IT	Logistics
34	Area Manager IT	Finance
35	Project Manager	Insurance
36	Assistant of Executive Board	IT Services

Appendix B: Interview Guide – Field Study (Cycle 1)

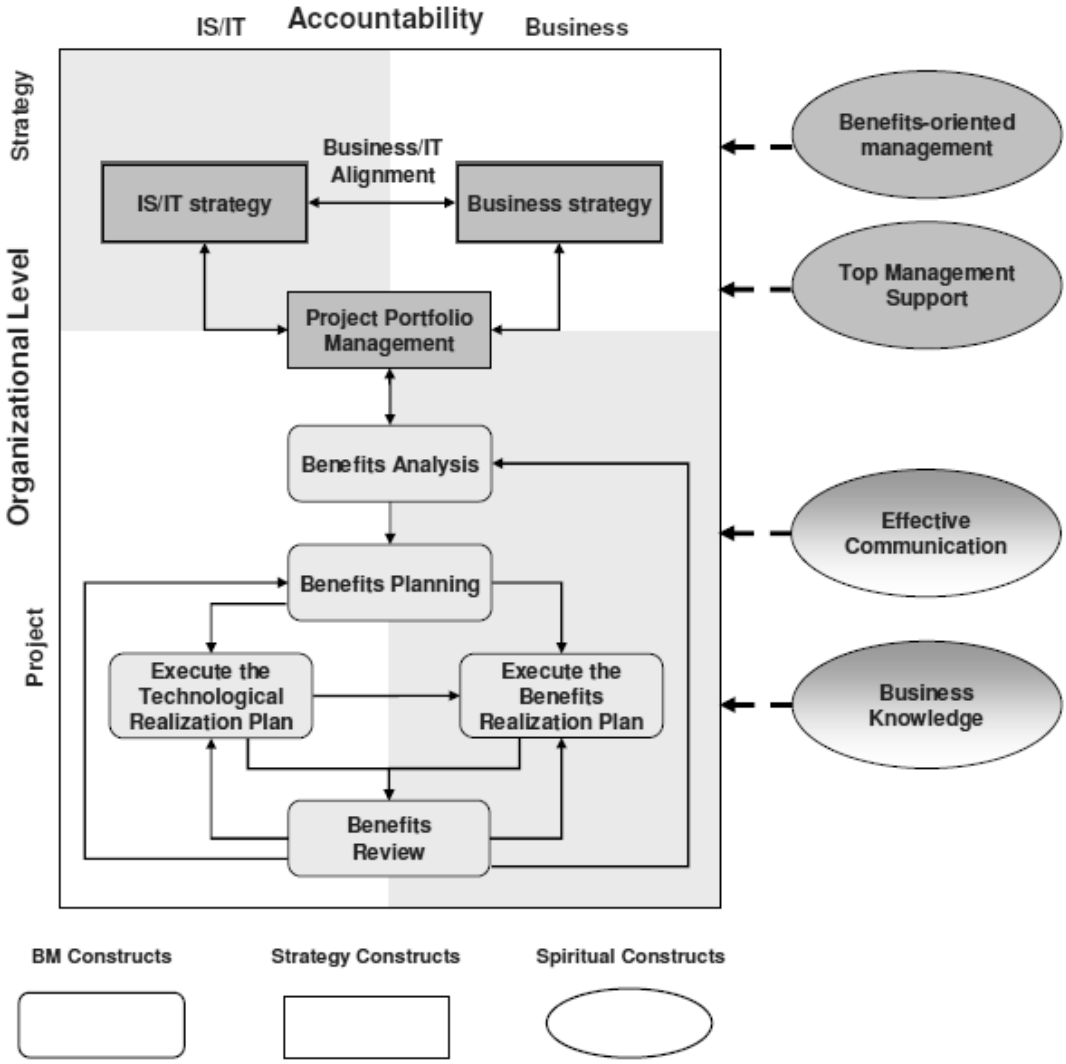
The following interview guide is based on Braun (2010 pp. 186-187).

#	Interview Question
Benefits Identification and Evaluation	
1-1	Please define what is understood by 'benefits' in your organization.
1-2	How do you evaluate the expected benefits prior to IS/IT investments?
1-3	What are critical success factors for realistically evaluating benefits?
1-4	What is the objective of evaluating benefits?
1-5	How satisfied are you with (a) the benefits identification and (b) the benefits evaluation in your organization?
Benefits Realization	
2-1	What is planned by the project plan and which figures is project control based on?
2-2	How are projects organized/structured in your organization?
2-3	To what extent do the business department and the IS/IT department work together during the project duration with regards to benefits realization?
2-4	How and in which phases of the project are benefits ultimately realized?
2-5	How satisfied are you with the benefits realization in your organization?
Post-project Evaluation	
3-1	Please outline the activities carried out in an ex post evaluation of IS/IT projects.
3-2	Are IS/IT projects or even an entire project portfolio actively analyzed with regards to additional, unplanned benefits?
3-3	Please outline the monitoring and review of benefits during and after the project's duration.
3-4	How big is the difference between planned benefits and actually realized benefits?
3-5	How satisfied are you with the ex post benefits review in your organization?
Strategy Planning	
4-1	Does your organization have a documented IT strategy? If yes, please outline the main objectives.
4-2	Please outline the communication and alignment between the IS/IT department and the business department with regards to the strategy.
4-3	How are strategic objectives operationalized?
4-4	How does your organization ensure that there is a link between strategic IT planning and operational project management?
#	**Interview Question**
4-5	How satisfied are you with the process of strategic IT planning and the realization of the strategic objectives in your organization?
Benefits Management	

#	**Interview Question**
5-1	What is your opinion in the potential and risks with regards to benefits management in your organization?
5-2	What are the three most important critical success factors for benefits management?
5-3	How important is organizational culture in the implementation of benefits management?
Are there any closing comments or suggestions with regards to benefits management you would like to make?	

Appendix C: Initial BM Design Theory after First Evaluation (Cycle 1)

The following design theory was exclusively developed by Braun (2010 p. 173).



Appendix D: Evaluation Questionnaire (Cycle 1)

The following questionnaire is based on Braun (2010, pp. 191-192).

#	Evaluation Question
Benefits Management	
1-1	Is benefits management an interesting topic for (IT) managers?
1-2	Are benefits management and benefits realization challenges for (IT) managers at present?
Benefits Management Features	
2-1	Is the underlying governance framework comprehensive? (a) Which additional organizational level can you think of? (b) Which additional accountabilities can you think of?
2-2	Are the relationships and dependencies in the artifact coherent and easy to understand?
2-3	Is it clear which activities underlying the constructs form the benefits management artifact?
2-4	Are the activities needed to successfully realize benefits included in the benefits management artifact comprehensive? a) Which additional activities can you think of? b) Which activities should be modified?
Benefits Management Spirit	
3-1	Are the spiritual constructs in the benefits management artifact coherent and easy to understand?
3-2	Are the spiritual constructs in the benefits management artifact comprehensive? a) Which additional spiritual constructs can you think of? b) Which spiritual constructs should be modified?
General Questions	
4-1	Is the benefits management artifact coherent and easy to understand?
4-2	Is the benefits management artifact comprehensive? Which aspects are missing? a) If constructs are missing, which ones and why are they important? b) How should the constructs be integrated into the benefits management artifact?
4-3	Is the benefits management artifact applicable?
4-4	Does the benefits management artifact have an adequate level of detail?
4-5	Does the benefits management artifact comply with other organizational standards, for example, project management, portfolio management, etc.?
4-6	Do you believe that the benefits management artifact helps realize benefits from IS/I investments?
4-7	What are the benefits of the benefits management artifact for practitioners?
4-8	Are there any aspects in the model that only apply for certain project types and that are as a result not generally applicable?

Appendix E: Refined BM Design Theory (Cycle 2)

Overview of meta-requirements

#	Meta-requirement
MR1	A BM artifact should support the distribution of benefit accountabilities among the business and IT department.
MR2	A BM artifact should help define clear accountabilities for benefits realization on the business side, especially when several business units are involved.
MR3	A BM artifact should motivate relevant stakeholders to engage in benefits realization.
MR4	A BM artifact should support benefits planning and realization in line with corporate strategy and IT strategy.
MR5	A BM artifact should create transparency with regard to the degree of benefits realization.
MR6	A BM artifact should help and guide stakeholders during benefits realization.
MR7	A BM artifact should account for changing environmental conditions and benefits volatility.
MR8	A BM artifact should allow for making mistakes during benefits analysis, planning and realization and should foster organizational learning.
MR9	A BM artifact should overcome “departmental egoism”.

Overview of design principles

#	Design Principle	Meta-Requirements
Steering Governance and Rewards		
DP1	Establish an accountability framework for benefits analysis, planning, and realization	MR1, MR2
DP2	Define benefits-related goals and incentives	MR3
Process Integration and Replicability		
DP3	Integrate benefits management into strategic planning processes	MR3, MR4, MR5
DP4	Implement dedicated benefits planning and realization processes	MR5, MR6
DP5	Establish benefits change management	MR6, MR7, MR8
DP6	Continuously refine and optimize benefits analysis and measurement	MR5, MR8
Collaboration and Communication Competency		
DP7	Cultivate benefits-related cross-departmental collaboration and joint target-setting	MR2, MR9
DP8	Foster thinking based on boundary-spanning cause-effect chains	MR9

Appendix F: List of Expert Interviews (Cycle 2)

Interview no.	Role of Interviewee	Industry
1	Business Value Consultant	IT Software
2	CIO	Retail Market
3	Strategy Consultant	IT Software
4	Solution Architect	IT Software
5	Managing Architect Enterprise Strategy	IT Software
6	Business Value Consultant	IT Services
7	Business Value Consultant	IT Consulting
8	Director Business Technology Management	Business Consulting
9	CEO	Business Consulting
10	Project Portfolio Manager	Chemical

Appendix G: Evaluation Questionnaire (Cycle 2)

#	Evaluation Question
Demographic Data	
1-1	In which department do you work?
1-2	What are your tasks there?
1-3	How would you rank your experience in benefits management?
Effective Benefits Management	
2-1	Which factors are relevant for an effective benefits management?
DP1: Establish an accountability framework for benefits analysis, planning, and realization	
3-1	How would you rate this design principle on a Likert-scale from 1 to 5?
3-2	**TP1a:** Clear benefits-related accountabilities (DP1) positively influence stakeholders' commitment to supporting benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
3-3	**TP1b:** Stakeholders' commitment to supporting benefits realization positively influences benefits realization's success. How would you rate this proposition on a Likert-scale from 1 to 5?
DP2: Define benefits-related goals and incentives	
4-1	How would you rate this design principle on a Likert-scale from 1 to 5?
4-2	**TP2:** Appropriate benefit-related targets and incentives (DP2) positively influence stakeholders' commitment to supporting benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
DP3: Integrate benefits management into strategic planning processes	
5-1	How would you rate this design principle on a Likert-scale from 1 to 5?
5-2	**TP3a:** Strategic planning integration (DP3) positively influences stakeholders' commitment to supporting benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
5-3	**TP3b:** Strategic planning integration (DP3) positively influences organizational learning on benefits management. How would you rate this proposition on a Likert-scale from 1 to 5?
DP4: Implement dedicated benefits planning and realization processes	
6-1	How would you rate this design principle on a Likert-scale from 1 to 5?
6-2	**TP4:** Dedicated benefits planning and realization processes (DP4) positively influence benefits realization's success. How would you rate this proposition on a Likert-scale from 1 to 5?
DP5: Establish benefits change management	
7-1	How would you rate this design principle on a Likert-scale from 1 to 5?

#	Evaluation Question
7-2	**TP5a:** Benefits change management (DP5) positively influences benefits realization's success. How would you rate this proposition on a Likert-scale from 1 to 5?
7-3	**TP5b:** Benefits change management (DP5) positively influences organizational learning on benefits management. How would you rate this proposition on a Likert-scale from 1 to 5?
7-4	**TP5c:** Organizational learning on benefits management positively influences benefits planning's quality and benefits realization's success. How would you rate this proposition on a Likert-scale from 1 to 5?
DP6: Continuously refine and optimize benefits analysis and measurement	
8-1	How would you rate this design principle on a Likert-scale from 1 to 5?
8-2	**TP6:** Continuous refinement and optimization of benefits analysis (DP6) positively influence organizational learning on benefits management. How would you rate this proposition on a Likert-scale from 1 to 5?
DP7: Cultivate benefits-related cross-departmental collaboration and joint target-setting	
9-1	How would you rate this design principle on a Likert-scale from 1 to 5?
9-2	**TP7a:** Benefits-related cross-departmental collaboration and joint target-setting (DP7) positively influence stakeholders' commitment to supporting benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
9-3	**TP7b:** Benefits-related cross-departmental collaboration and joint target-setting (DP7) positively influence benefits planning's quality. How would you rate this proposition on a Likert-scale from 1 to 5?
9-4	**TP7c:** Benefits planning's quality positively influences benefits realization's success. How would you rate this proposition on a Likert-scale from 1 to 5?
DP8: Foster thinking based on boundary-spanning cause-effect chains	
10-1	How would you rate this design principle on a Likert-scale from 1 to 5?
10-2	**TP8a:** Thinking based on boundary-spanning cause-effect chains (DP8) positively influences benefits planning's quality. How would you rate this proposition on a Likert-scale from 1 to 5?
10-3	**TP8b:** Thinking based on boundary-spanning cause-effect chains (DP8) positively influences stakeholders' commitment to supporting benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
General Questions	
11-1	Are the benefits management design principles comprehensive? Which aspects are missing? a) If design principles are missing, which ones and why are they important? b) How should the design principles be integrated into the benefits management design theory?
11-2	Are the benefits management design principles applicable?

#	**Evaluation Question**
11-3	Do the benefits management design principles have an adequate level of detail?
11-4	Are there any further comments you would like to add regarding benefits management?

Appendix H: List of Expert Interviews (Cycle 3)

Interview no.	Role of Interviewee	Industry
1	Business Value Consultant	IT Consulting
2	IT Consultant	IT Consulting
3	Business Value Consultant	IT Consulting
4	Director Business Technology Services	IT Services
5	Business Value Consultant	IT Services
6	IT Consultant	IT Consulting
7	IT Strategy Manager	Energy

Appendix I: Evaluation Questionnaire (Cycle 3)

#	Evaluation Question
Demographic Data	
1-1	Which gender do you have?
1-2	What is your age?
1-3	What is your current job position?
1-4	How many years of work experience do you have?
1-5	How many years of IT management experience do you have?
1-6	For how many years are you working in the company?
1-7	For how many years are you working in your current position?
General Questions on BM	
2-1	Which factors do you regard as important when realizing benefits?
2-2	Which challenges for benefits management do you see?
2-3	What are your experiences with the measurement of benefits? Which problems can appear?
Meta-requirements	
3-1	**MR1:** A BM artifact should hold someone accountable for benefits realization How would you rate this meta-requirement on a Likert-scale from 1 to 5?
3-2	**MR2:** A BM artifact should ensure a reliable benefits realization How would you rate this meta-requirement on a Likert-scale from 1 to 5?
3-3	**MR3:** A BM artifact should achieve stakeholder commitment How would you rate this meta-requirement on a Likert-scale from 1 to 5?
3-4	**MR4:** A BM artifact should create transparency to benefits realization How would you rate this meta-requirement on a Likert-scale from 1 to 5?
3-5	**MR5:** A BM artifact should account for changing environmental conditions and benefits volatility How would you rate this meta-requirement on a Likert-scale from 1 to 5?
3-6	**MR6:** A BM artifact should overcome departmental isolation How would you rate this meta-requirement on a Likert-scale from 1 to 5?
3-7	Which additional aspects or meta-requirements do you regard as important?
Principle CCS1: Establish an Accountability Framework for Benefits Realization	
4-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
4-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
4-3	**TP1a:** An accountability framework for benefits realization will ensure that every IS/IT project has someone accountable for benefits realization.

#	Evaluation Question
	How would you rate this proposition on a Likert-scale from 1 to 5?
4-4	**TP1b:** An accountability framework for benefits realization will lead to an increased stakeholder commitment. How would you rate this proposition on a Likert-scale from 1 to 5?
4-5	**TP1c:** An accountability framework for benefits realization will help to overcome departmental isolation. How would you rate this proposition on a Likert-scale from 1 to 5?
Principle CCS2: Establish a dedicated Benefits Planning Mechanism	
5-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
5-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
5-3	**TP2a:** A dedicated benefits planning mechanism will ensure a reliable benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
5-4	**TP2b:** A dedicated benefits planning mechanism will create transparency to benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
Principle CCS3: Define benefits-related Goals and Incentives	
6-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
6-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
6-3	**TP3a:** Defined benefits-related goals and incentives will lead an increased stakeholder commitment. How would you rate this proposition on a Likert-scale from 1 to 5?
6-4	**TP3b:** Defined benefits-related goals and incentives will help to overcome departmental isolation. How would you rate this proposition on a Likert-scale from 1 to 5?
Principle CCS4: Conduct Benefits Measurement on a regular Basis	
7-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
7-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
7-3	**TP4a:** Benefits measurement on a regular basis will ensure a reliable benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?
7-4	**TP4b:** Benefits measurement on a regular basis will create transparency to benefits realization. How would you rate this proposition on a Likert-scale from 1 to 5?

#	Evaluation Question
7-5	**TP4c:** Benefits measurement on a regular basis will account for changing environmental conditions and benefits volatility. How would you rate this proposition on a Likert-scale from 1 to 5?
Principle CC1: Proactively communicate all relevant Information on Benefits Management	
8-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
8-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
8-3	**TP5a:** Proactive communication of BM-related information will lead an increased stakeholder commitment. How would you rate this proposition on a Likert-scale from 1 to 5?
8-4	**TP5b:** Proactive communication of BM-related information will help to overcome departmental isolation. How would you rate this proposition on a Likert-scale from 1 to 5?
Principle CC2: Cultivate cross-departmental Collaboration	
9-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
9-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
9-3	**TP6a:** Cross-departmental collaboration will lead an increased stakeholder commitment. How would you rate this proposition on a Likert-scale from 1 to 5?
9-4	**TP6b:** Cross-departmental collaboration will help to overcome departmental isolation. How would you rate this proposition on a Likert-scale from 1 to 5?
Principle CC3: Implement a dedicated Benefits Change Management	
10-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
10-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
10-3	**TP7:** A dedicated benefits change management helps to account for changing environmental conditions and benefits volatility. How would you rate this proposition on a Likert-scale from 1 to 5?
Principle CC4: Implement Benefits Management in alignment with the Organization's Project Management Maturity	
11-1	How would you rate the relevance of this design principle on a Likert-scale from 1 to 5?
11-2	How would you rate the applicability of this design principle in practice on a Likert-scale from 1 to 5?
11-3	**TP8a:** Alignment between benefits management and the organization's project management maturity will lead an increased stakeholder commitment. How would you rate this proposition on a Likert-scale from 1 to 5?
11-4	**TP8b:** Alignment between benefits management and the organization's project management maturity will create transparency to benefits realization.

#	**Evaluation Question**
	How would you rate this proposition on a Likert-scale from 1 to 5?
General Questions	
12-1	Which further design principles or requirements for an efficient and effective benefits management process do you regard as important?

GUIDING THE EFFECTIVE BENEFITS REALIZATION FROM IS/IT PROJECTS – A REFERENCE MODEL ON BENEFITS MANAGEMENT[5]

Abstract

Although organizations have designed and implemented information systems and information technology (IS/IT) for many years, the successful realization of appropriate benefits from these investments is considered a major organizational challenge until today. To solve this issue, benefits management (BM) emerged as an evolving field in IS research. Beyond traditional project management dimensions, such as time, cost, and quality, BM emphasizes the need to identify, plan, realize, and review benefits, particularly by means of business changes. When analyzing studies and reports published since 1996, which consistently find BM to be a highly effective management approach, it is surprising that scholars generally still find the BM adoption rate to be very low. Although theoretical frameworks and methods on BM exist that include highly generalizable prescriptions, they exclude operative guidelines that are easy to follow for practitioners. Consequently, organizations are missing artifacts such as reference models, from which they could clearly derive applicable practices for their BM implementations. To address this issue, the goal of this essay is to develop a BM reference model that guides practitioners in the successful benefits realization from IS/IT projects and includes the following components: a process model, a role model, a RACI matrix, and a benefits change management process model. The reference model is suitable for firms that meet prerequisites in several IS/IT related domains, such as a central IT governance, as well as a moderate to high level of maturity in project management and IT controlling. The findings help organizations to find operative guidance in the effective implementation of BM and to identify further areas for improvement, while ultimately increasing BM adoption in practice.

Keywords: benefits management, reference modeling, process steps, role model, benefits change management

[5] This essay was written in sole authorship.

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List of Abbreviations

BDN Benefits dependency network

BM Benefits management

CRM Customer relationship management

EA Enterprise architecture

IS Information system

IT Information technology

PM Project management

RACI Responsible, accountable, consulted, and informed

1 Introduction

Motivated by the low success rates of information systems / information technology (IS/IT) projects (El Emam & Koru, 2008; Levinson, 2009; Shpilberg, Berez, Puryear, & Shah, 2007), IS scholars have investigated the effective management of such projects and, consequently, their contribution to business value for several years. While this research concentrated on analyzing and understanding IS success in the beginning (Delone, 2003; DeLone & McLean, 1992), as well as on executing and finishing projects with the ex-ante specified cost, time, and scope constraints, the evaluation of IS/IT investments regarding delivering the anticipated IS/IT value was neglected. In the mid-1990s practitioners and researchers realized the need for management concepts that function parallel to project management, but aim to deliver project benefits (and not just the immediate project results) that will support long-term organizational goals. For example, IT project management has facilitated the task of selecting, implementing, and deploying a customer relationship management (CRM) system in the form of a project. However, it is still comparatively difficult to realize the associated benefits with this technology, such as increasing sales and customer satisfaction. In this context, benefits management (BM) has evolved as an independent research discipline that has been investigating the successful realization of IS/IT project benefits since the 1990s (Ward, Taylor, & Bond, 1996). BM emphasizes organizational change as an important prerequisite for realizing benefits from IS/IT investments, and is defined as "organizing and managing IS/IT initiatives so that potential benefits arising from the use of IT are actually realized" (Ward et al., 1996, p. 214). Until today, common frameworks such as standards proposed by the PMI (Project Management Institute, 2008b) do not address an ongoing exploitation of IS/IT investment benefits after project closure.

When analyzing studies and reports published since 1996, which consistently consider BM to be a highly effective management approach, it is surprising that scholars generally still find the BM adoption rate to be very low (e.g., Braun, Mohan, & Ahlemann, 2010; Breese, Jenner, Serra, & Thorp, 2015; Coombs, Doherty, & Neaga, 2013; Päivärinta & Dertz, 2008). This holds true even for those countries, where its initial development began, such as the UK (Breese et al., 2015, p. 1440), and suggests that some serious barriers affect its adoption (Breese et al., 2015, p. 1449). Scholars termed this issue a 'knowing-doing' gap (Pfeffer & Sutton, 2000), with existing BM practices from research not being applied by practitioners (Ashurst & Hodges, 2010, p. 231). Although theoretical frameworks and methods on BM exist that include highly generalizable prescriptions, they exclude operative guidelines that are easy to follow for practitioners (Schubert & Williams, 2013; Ward & Daniel, 2006; Ward, De Hertogh, & Viaene, 2007; Ward et al., 1996). However, as organizations are typically unable to appropriately translate such generalizable prescriptions from research into applicable guidelines, an exchange between these two sites cannot take place. Consequently, organizations

require artifacts such as reference models on a low level of abstraction, which are detailed enough to derive applicable practices for their BM implementations.

To address this issue, the goal of this essay is to develop a BM reference model that includes detailed descriptions of all necessary components (e.g., process, steps, roles, etc.) to successfully realize benefits from IS/IT projects. I aim to enrich existing BM frameworks and models from academia with operative roles and process steps that are particularly relevant and applicable for practitioners. In doing so, I intend to close the above mentioned 'knowing-doing' gap between research and practice while supporting the increasing adoption and implementation of BM in firms. For this purpose, the BM reference model consists of the following components: a process model, a role model, a RACI matrix, and a benefits change management process model. To ensure a valid foundation, the reference model is developed as one possible instantiation of the previous essay's BM design theory that has already been evaluated in practice. However, in contrast to the latter, the reference model's applicability is limited to organizations that fulfill specific prerequisites in several IS/IT related domains, as its higher level of detail comes with a lower level of generalizability. Consequently, the reference model is suitable for organizations with a central IT organization, a high maturity of project management, and a moderate maturity of IT controlling and enterprise architecture management, as the successful implementation of the reference model would otherwise be severely hindered. Finally, my reference model focuses on benefits realization in a single IS/IT project. Therefore, overlapping activities on program and project portfolio level are excluded, as they would require substantial modifications of the process and role model, due to the need for different roles, committees, and process steps which come with a greater level of complexity.

The essay is organized as follows: Section 2 presents an overview on BM and reference models. The research method is described in Section 3, while the components of my BM reference model are summarized in Section 4. Afterwards, I provide recommendations for implementation. A formal evaluation of the reference model is given in Section 6, while I conclude with a discussion of the contribution of my findings, their imitations, and suggestions for further research.

2 Research Background

2.1 Benefits Management

BM research started to evolve in the mid-1990s, when Ward et al. (1996, p. 214) conducted an empirical study on industry practices in the UK. According to this initial study, many organizations were dissatisfied with the available benefits-realization methods. Subsequently, the authors presented the Cranfield BM process model as a means of overcoming this issue (Figure 5-1). The process model remains one of the most widely used and cited models in the BM research field. It outlines the scope and nature of BM in five stages: in stage one, the benefits are identified, appropriate measures are derived, and the linkages between an IS/IT investment and the business changes required to realize the anticipated benefits are concluded. The subsequent benefits realization planning covers the allocation of responsibilities and the assessment and planning of the respective changes. In stage three, the appropriate business changes are made, along with the preceding IS/IT implementation. After evaluation and review of the results, the before and the after measures are compared, in order to assess the degree of achieved benefits realization. In the last stage, further unanticipated benefits are planned and realized, while new experiences are documented for future projects (Ward et al., 1996, pp. 216–217).

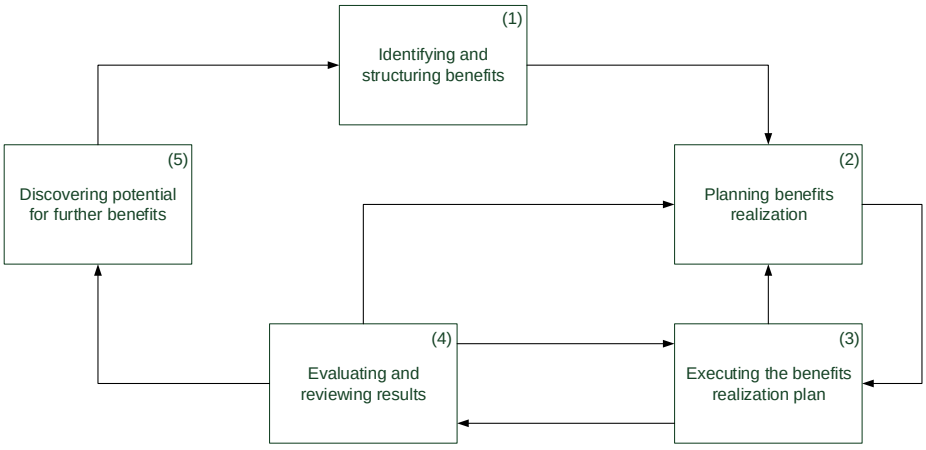

Figure 5-1. Cranfield BM process model (Ward et al., 1996, p. 216)

The relevance of these five process steps has been confirmed by other scholars who investigated BM success and its determinants. Doherty et al. (2012) conducted three case studies with the research objective to investigate factors with a positive effect on the success of BM. Their research results show that successful BM requires a reconstitution of traditional IT project management success factors, such as a detailed benefits planning approach, ongoing benefits reviews, and organizational change. Mohan et al. (2011) apply the results of a survey of 456 respondents to structural equation modeling and find that particular BM-related competencies, such as analysis, planning, implementation, and review positively affect its success.

Besides this model, other tools such as the benefits dependency network (BDN, see Figure 5-2), have been developed to explicitly link "the overall investment objectives and required benefits (the ends) with the business changes (the ways) necessary to deliver those benefits and the essential IT capabilities (the means) that enable these changes" (Peppard, Ward, & Daniel, 2007, p. 5). This tool was recently extended by Coombs (2015, p. 371) who drew on IS/IT evaluation theory to add technical and organizational facilitators and inhibitors in relation to the enabled organizational change.

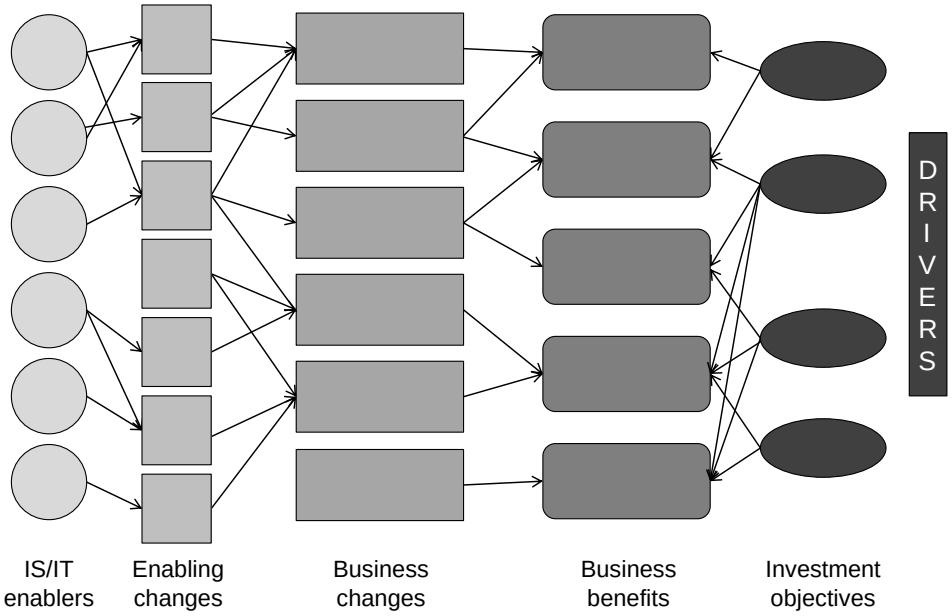

Figure 5-2. Benefits dependency network (Ward & Daniel, 2006, p. 134)

While I acknowledge that artifacts such as the Cranfield BM process model and the BDN, may help firms to understand BM in general, they are still too abstract to derive operational activities from them. I also see a significant need for further development, as many organizations face challenges that have not yet been addressed. For instance, both artifacts give little advice on how to integrate BM into the larger domain of IS/IT project management, how to establish benefits-related accountabilities, or how to address the dynamic environment of IS/IT projects. Therefore, the goal of this essay is to provide a BM reference model that tackles these gaps and advises practitioners to successfully implement BM.

2.2 Reference Models

Until today there is no mutual consensus on the term "reference model" as it "belongs to a class of terms used often but rarely defined clearly" (Hars, 1994, p. 12). In general, it is understood as a conceptual model that comprises recommended practices and guidelines for a certain domain of interest (Fettke & Loos, 2004, p. 332; Frank, 1999, p. 695). According to Thomas (2005), a reference model is typically characterized by two attributes: on the one hand, it is universally applicable to a specific "category of applications" (Thomas, 2005, p. 488). On

the other hand, it provides meaningful recommendations by serving as a "default solution, from which enterprise-specific concretizations can be derived" (Thomas, 2005, p. 489). Keeping these arguments in mind, I define a reference model in line with Thomas (2005, p. 491) as a conceptual model used for "supporting the construction of other models."

The application of reference models is common in the IS discipline as they have a number of advantages: while they quicken the identification and structuring of information systems, processes, and methods, they simultaneously help to reduce the associated costs. Furthermore, they enable the reduction of failure by providing "best practices" that have typically been validated several times for a particular domain (Becker & Schütte, 1997, pp. 432–434). However, critics mention the increasing degree of standardization through reference models, which lead to a loss of distinct competitive advantages.

In conclusion, my BM reference model is intended to provide organizations with state-of-the-art practices and guidelines on the successful implementation of BM, which have to fit the respective organization's maturity in several IS/IT related domains (i.e., central IT organization, advanced project management maturity, etc.).

3 Research Process

The following research process consists of four stages: a literature review, an exploratory field study, the design theory development, and the reference model development. As the latter represents a possible instantiation of the previous essay's design theory, the first three stages are mentioned here for the sake of completeness and transparency; they were already described in detail in the previous essays.

In the first step of the research process, a structured literature review on BM was conducted (Webster & Watson, 2002), which provided first insights into its lack of adoption in practice. In addition, the literature review provided an overview of existing BM frameworks and methods that were overall on a rather high level of detail, but were subsequently found to be missing precise guidelines for practitioners (Hesselmann & Mohan, 2014, p. 11).

As the next step, an exploratory field study (Klein & Myers, 1999, p. 72) was initiated to gain more insights into the problem domain of effective BM implementations in practice. For this purpose, guided interviews with BM stakeholders at top management, middle management, and project management levels were carried out (Yin, 2002, p. 89). The sample included 36 interviewees from 29 organizations operating in the insurance, banking, logistics, IT provision, energy, and retail market industries. As the maturity of benefits management was expected to be low in most organizations, theoretical sampling was chosen instead of a random sample (Eisenhardt & Graebner, 2007, p. 27). Generally, each interview lasted 60 to 90 minutes. The interview data were analyzed using the qualitative analysis software atlas.ti (Miles & Huberman, 1984). As a result of this step, in-depth insights into the BM approaches in practice were obtained, which included descriptions of applied BM practices, success factors, and perceived challenges.

In the third step of the research process, a design theory for BM was developed (Gregor & Hevner, 2013; Gregor & Jones, 2007; Hevner, March, Park, & Ram, 2004). For this purpose, meta-requirements that represented current challenges to BM were derived, based on the BM literature review and the field study. To address these appropriately, concepts from the organizational control theory were utilized for the BM domain to develop design principles and testable proposition. These were subsequently evaluated in expert interviews to ensure their validity and applicability in practice (for details see the previous essay).

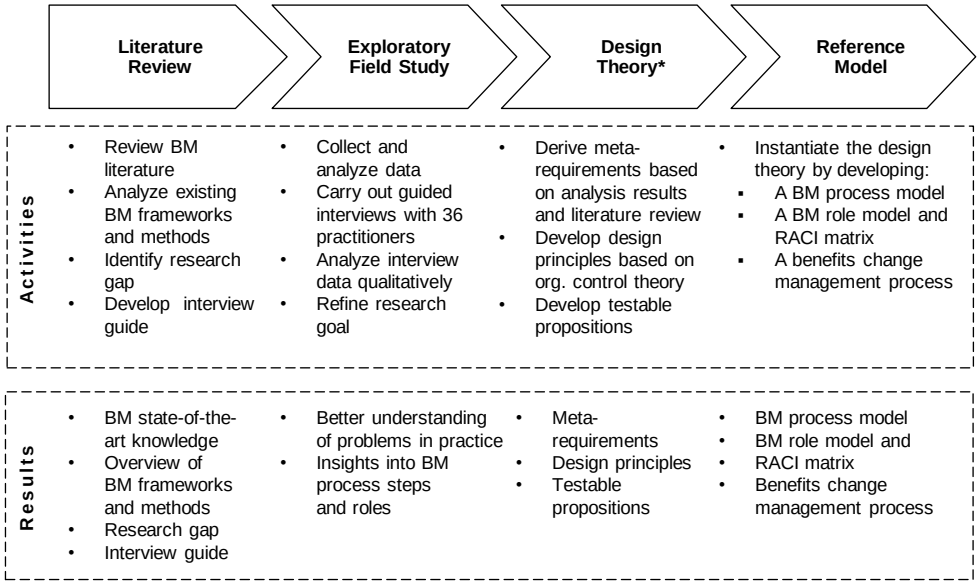

Figure 5-3. Research process overview

Finally, based on the findings in the previous steps, a reference model for BM was developed (Fettke & Loos, 2004; Frank, 1999). It addresses the initial research gap, namely that current BM frameworks and methods were found not to be detailed and practicable enough for being implemented by organizations. While the BM design theory follows a similar objective, it posits that all its design principles are universally applicable; moreover, they are required to exploit the whole potential of BM. In contrast, the BM reference model represents one possible instantiation of it operating on a lower level of abstraction. Furthermore, it makes more specific assumptions regarding the implementing organization's characteristics in several IS/IT related domains (for more information see Section 5). Subsequently, it provides organizations with clear guidelines and practices that are more concrete and thus easy to understand and implement.

4 Benefits Management Reference Model

The benefits management reference model consists of the following components: a BM process model, a BM role model and RACI matrix, as well as a benefits change management process. All four components are intended to be both parsimonious and flexible, so that they can be easily added to existing IS/IT project management guidelines and methods that are already in use. In addition, their focus is on the operative project level, as additional aspects from program and project portfolio management require additional roles, committees, and process steps, which would increase this model's complexity by a substantial degree. Instead these remain for a latter extension of the reference model.

4.1 Benefits Management Process Model

In the following BM process model (see Table 5-1), all process steps are described that are necessary for successful benefits realization on an operative level. As the focus lies on benefits management, not all typical process steps of regular IS/IT project management are described in detail, but only those in direct relation to benefits management.

Table 5-1. BM process model

#	BM process step	Project lifecycle stage	Description
1	Identify benefits	IT / business project initiation	Identify the benefits that can be realized from the IS/IT investment and related stakeholder expectations.
2	Analyze benefits and plan benefits realization (roughly)	IT / business project initiation	In an initial cross-departmental workshop with relevant stakeholders from IT and business, identify benefits and analyze their respective realization (e.g. by using a BDN), including the necessary business changes and IS/IT solution's functionalities. Subsequently create preliminary plans for the IS/IT implementation (IT project plan) as well as benefits realization through business changes (business project plan), with initial budget estimates. Furthermore, based on both plans, assign accountabilities between the involved stakeholders (see the BM role model and RACI matrix for more information).
3	Create business case with identified benefits	IT / business project initiation	Create a proper business case document that includes all analyzed benefits and that is signed by all involved stakeholders. During and after the IT and business project execution, use the business case (incl. possible adjustments) for evaluative comparisons.
Milestone 1 – IT / business project approved			

#	BM process step	Project lifecycle stage	Description
4	Identify and engage potential stakeholders	IT / business project planning	Identify and engage potential stakeholders (from low to top level management) that are affected by the IS/IT solution and business changes. To assess the impact on stakeholders, also include an ex-ante analysis of affected stakeholders' work behavior that might change. Furthermore, ensure that sufficient information about the upcoming changes and their rationales (i.e., benefits) is provided to the stakeholders through appropriate communication channels.
5	Define benefits-related assumptions	IT / business project planning	Define assumptions regarding benefits realization by addressing the dynamic project environment, benefit volatility, etc. Exemplary question for this purpose can be: "What changes are necessary to realize the benefit? Which business processes and activities are related to the benefit? How volatile is each benefit?"
6	Plan benefits realization (detailed)	IT / business project planning	In a workshop with all relevant stakeholders (typically several months after the initial workshop), analyze the cause-effect chains that underlie each benefit and refine existing artifacts (e.g., IT project plan, benefits project plan, benefits measures, etc.). Translate both plans into concrete work packages, prioritize them, and assign them to the respective stakeholders. Furthermore, if necessary, update the assigned accountabilities to the detailed plans.
7	Incentivize stakeholders	IT / business project planning	Link stakeholders' personal goals with the realization of particular benefits to ensure their commitment and support throughout the project. Grant the rewards only after successful benefits realization.
Milestone 2 – IT / business project planned			
8	Implement benefits-oriented control mechanisms and monitoring	Benefits monitoring	Ensure that cross-departmental meetings, workshops, and communication take place. Furthermore, monitor the progress of benefits realization with dedicated measures throughout and beyond the project while providing regular benefit reports. Communicate quick wins to stakeholders for ongoing motivation and commitment in regular intervals.

#	BM process step	Project lifecycle stage	Description
9	Implement IS/IT solution according to plan (IT-related)	IT project execution	Develop functional and technical specification, implement and test IT solution.
10	Implement business changes according to plan (business-related)	Business project execution	Implement business changes by adjusting business processes, work routines, etc. Furthermore, enable these changes by conducting training, implementing new products, etc.
11	Perform benefits change management	Benefits monitoring	Regularly, monitor the project environment for changes, in particular in accordance to the benefits-related assumptions. When anticipated benefits are no longer implementable due to changed contextual variables, a benefits change management process is triggered. This process ensures that all relevant stakeholders reassess the situation and adjust their benefit planning, realization, and measuring accordingly (see Section 4.3).
12	Rollout the technical solution	IT project execution	Rollout the technical solution in all departments, and inform the help desk and other stakeholders about the new solution. Coordinate consequent training and further business changes with the business project team.
Milestone 3 – IT / business project executed			
13	Review realized benefits	Benefits monitoring	Conduct a final workshop with all stakeholders in which the benefits are reviewed in terms of successful realization and compared with the business case. As far as individual goals are fulfilled, rewards are provided subsequently. Afterwards, repeat this review in regular intervals (e.g., bi-monthly) with a smaller group of responsible stakeholders, until all benefits are realized or declined with a consensus.
14	Analyze and document lessons learned on benefits management	Benefits monitoring	Analyze mistakes and positive results, reflect on them with the benefits' stakeholders and project teams, save new information in a dedicated project database.
15	Refine benefits metrics and measures	Benefits monitoring	Based on the lessons learned, update available benefit metrics and measuring scales for future projects.
Milestone 4 – Benefits monitored			

As the described BM process steps are not necessarily performed in a strict, sequential order, but overlap each other at several points, I depict their progression schematically in Figure 5-

4. As soon as the planning of the IT and business project is about to end, the IT project execution starts with the functional and technical design. Meanwhile, benefits monitoring begins by measuring the realization of benefits and their surrounding environment. As the IT project execution is near completion, having provided the functional solution, the benefits project begins while benefits monitoring increases until all planned benefits have finally been realized.

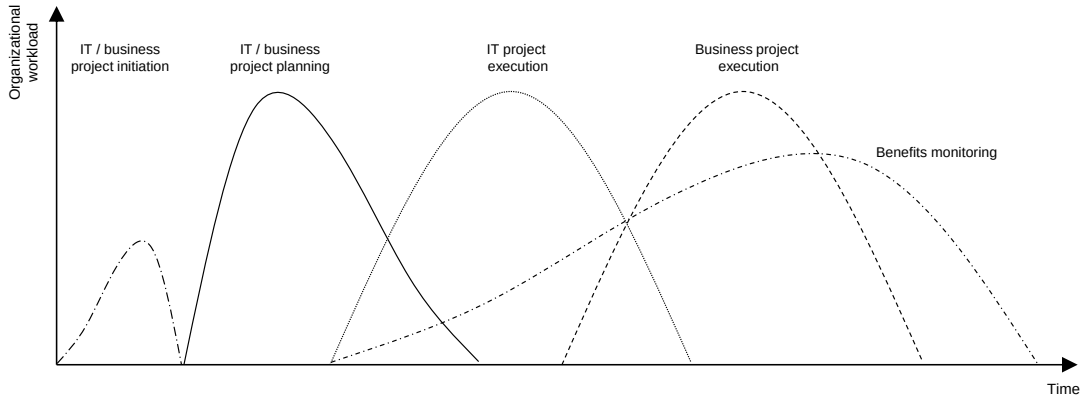

Figure 5-4. Schematic IT / business project lifecycle overview

4.2 Benefits Management Role Model and RACI Matrix

The following role model represents an overview of necessary accountabilities and tasks for the benefits realization from IS/IT projects. As with the BM process model, I did not include all typical roles of IS/IT project management, but only the most relevant ones for benefits management. As the activities of the IS/IT project implementation and benefits realization are tightly interwoven making the separation of tasks and accountabilities between business and IT difficult at times, a short overview of their distinction is presented in Table 5-2. Furthermore, the relation between the BM process steps and associated roles is described in a RACI matrix (see Table 5-3), which describes the accountabilities and responsibilities assigned to each role (Project Management Institute, 2008a, p. 221; Smith & Erwin, 2007).

Benefits owner

This role is ultimately accountable for the achievement of all anticipated benefits. It ensures the necessary funding, skills, resources, etc. that are required for successful benefits realization (Bradley, 2010, pp. 66–67; Ward & Daniel, 2006, pp. 253–254, 2012, p. 71). Furthermore, the benefits owner ensures the proper analysis of benefits, realization planning, benefits measuring, and steering of benefits realization. If particular benefits can only be realized via complex cause-effect chains, spanning multiple areas of responsibility, additional stakeholders may be involved. By aligning their personal goals with the achievement of assigned benefits, these stakeholders become extrinsically motivated to support the respective realization of those benefits. Operative work may be delegated but not accountability. Typically, this role is assigned to the project sponsor who also initiated the project (Zwikael & Smyrk, 2012, p. 19).

IT project manager

This classic role plans and coordinates the design, implementation and rollout of the IT solution (Bradley, 2010, pp. 69–70). Furthermore, the IT project manager regularly communicates with the business project manager to discuss changes such as trainings or new products/services that are required in conjunction with the technical implementation. He reports in two to four-weekly intervals to the benefits owner while supporting the benefits controller with benefits measuring.

Business project manager

The business project manager plans and coordinates the necessary business changes and ensures their effective implementation. He has to communicate, coordinate, and support the business units that are needed to implement the respective business changes (Bradley, 2010, pp. 70–71; Ward & Daniel, 2006, pp. 254–255). Furthermore, this role monitors the progress of the business project. His job usually reaches its peak when the IS/IT execution is near its end, so that the subsequent business changes can be implemented. This role also reports to the benefits owner in regular intervals. In smaller projects / organizations, the benefits owner can also be the business project manager. Table 5-3 provides further information on the relation between IT and the business project manager.

Benefits stakeholder

This role represents all possible stakeholders who contribute to benefits realization by providing business process knowhow, applying business changes, adjusting work routines, etc. (Bradley, 2010, pp. 11–13, 71–74; Ward & Daniel, 2006, p. 107). In particular, the middle management is involved here that is responsible for managing a business unit or business department on a day to day basis (Dupont & Eskerod, 2016, p. 785). It is even possible that these persons are involved in the required business changes but do not necessarily profit from the respective benefit. Sufficient motivation is ensured through individual rewards that are aligned with the realization of benefits / business changes.

Benefits controller

The benefits controller regularly measures the progress of benefits realization and provides dedicated reports for the involved stakeholders (Bradley, 2010, p. 147; Ward & Daniel, 2006, pp. 254–255). Furthermore, this role ensures that even after the end of the project, its benefits are continuously measured and evaluated against the business case as they are typically only realized completely several months after the business project's execution. In addition, this role ensures that all benefits-related reports are created by an independent instance to avoid misleading reports from executives who strive to achieve their individual benefits-linked rewards.

In practice, the assignment of this role depends on the particular organization and is decided situationally. One possibility is an IT controller, as he would have a proper understanding of IT related processes and costs, but may miss sufficient business contacts and have a lower standing in the organization. On the other hand, a controller from a central controlling unit would have good connections throughout the organization, but less IT related knowhow. Finally, a dedicated benefits controller might be the most appropriate option, but that comes with higher costs for the organization.

IT project team

The IT project team includes typical IT related roles such as requirements engineers, software engineers, technical architects, test managers, etc. It develops the functional and technical specification, implements and tests the IS/IT solution, and finally rolls it out. Furthermore, it conducts trainings and remains available for subsequent refinements.

Business project team

This team consists of business analysts, enterprise architects, operative day to day employees from the affected business units, etc. It is of particular importance that sufficient business process knowhow is available in this team to steer benefits analysis, planning, and realization. In collaboration with the benefit sponsor, the to-be enterprise architecture is specified and the required changes for the transformation from the as-is architecture are developed.

Table 5-2. IT / business accountability overview

Business	IT	Strategic management
Develops requirements	Develops IT solution	Develops strategic goals
Describes how the IT solution realizes benefits	Describes how the IT solution fulfills the requirements	Describes how the project portfolio implements the strategic goals
Develops a benefits realization plan (business project plan)	Develops an IT solution implementation plan (IT project plan)	Develops a project portfolio that translates the strategy into benefits-oriented projects
Implements the business project plan	Implements the IT project plan	Implements the strategy through the project portfolio
Is accountable for the benefits realization	Is accountable for the implementation of the IT solution	Is accountable for the strategy implementation

To link the presented roles with the benefits management process, I created a RACI matrix that provides a better overview of accountabilities and responsibilities. It describes the particular BM process steps down the rows and the responsible roles across the columns (see Table

5-3). In each cell the function of the role, in terms of being responsible, accountable, to be consulted, or to be informed is determined (Smith & Erwin, 2007).

Table 5-3. Benefits management RACI matrix

#	BM process step	Benefits owner	IT project manager	Business project manager	Benefits stake-holder	Benefits control-ler	IT project team	Business project team
1	Identify benefits	A / R						
2	Analyze benefits and plan benefits re-alization (roughly)	A	C	R	C	C		
3	Create business case with identified benefits	A / R			C			
Milestone 1 – IT / business project approved								
4	Identify and engage potential stake-holders	A	C	R	C			
5	Define benefits-related assumptions	A	C	R	C		C	C
6	Plan benefits realization (detailed)	A / R	C	C	I			
7	Incentivize stakeholders	A	C	R	C	C	C	C
Milestone 2 – IT / business project planned								
8	Implement benefits-oriented control mechanisms and monitoring	A	C	C	I	R	I	I
9	Implement IS/IT solution according to plan (IT-related)	I	A	C	I	I	R	C
10	Implement business changes accord-ing to plan (business-related)	I	C	A	I	I	C	R
11	Perform benefits change management	A	C	R	C	C	C	C
12	Rollout the technical solution	I	A	I	I	I	R	I
Milestone 3 – IT / business project executed								
13	Review realized benefits	A	C	R	C	C	C	C
14	Analyze and document lessons learned on benefits management	A	C	R	C	C	C	C
15	Refine benefits metrics and measures	A	C	C		R		
Milestone 4 – Benefits monitored								

Notes: R (responsible) = responsible for the implementation of the process step; A (accountable) = accountable for the correct completion of the process step; C (to be consulted) = is consulted about information for the implementation of the process step; I (information) = is informed about the result of the process step

4.3 Benefits Change Management Process

The change management process starts with the initial benefit planning, where the anticipated benefits are analyzed and planned with all involved stakeholders. In this context, appropriate assumptions are made for each benefit as to the conditions under which it is realizable and which factors might inhibit its impact for the organization. In the subsequent (IT and business)

project implementation, the dynamic project environment is monitored in regular intervals (e.g. every four weeks). If an environmental change has taken place, the validity of the benefits-related assumptions is assessed. In case an assumption is violated, the benefits change management is triggered and the project is reassessed by all relevant stakeholders. If the project is still beneficial and thus its benefits are still achievable it is continued, while the benefits plan, benefits measurements, and benefits-related assumptions are adjusted. This can even lead to new goals and incentives for all parties involved and requires formal approval by the (top) management, as well as an adjustment of the business case. If the main benefits are no longer realizable, the IS/IT project may be terminated. Figure 5-5 presents an overview of the benefits change management process.

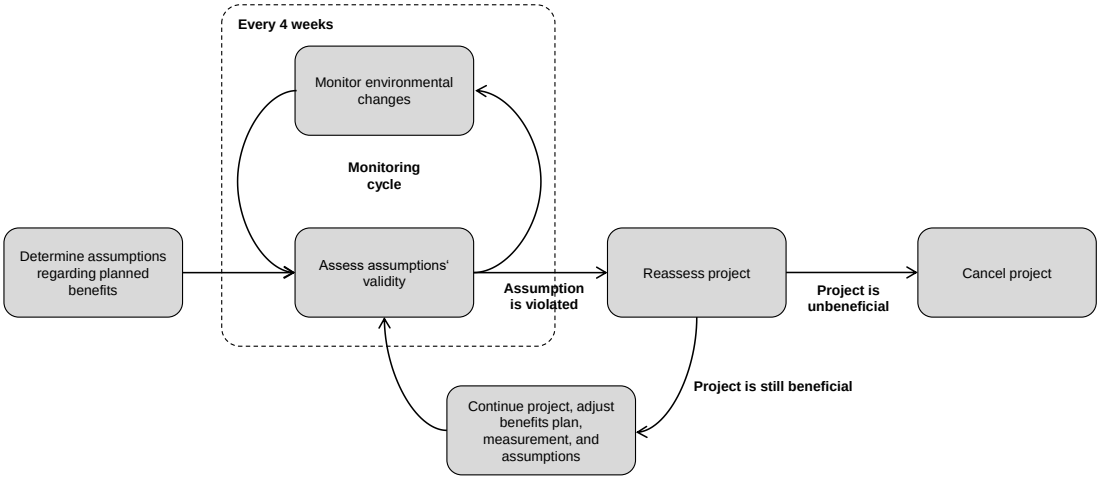

Figure 5-5. Benefits change management process

5 Recommendations for Implementation

5.1 Implementation Prerequisites

The presented BM reference model is intended for organizations that fulfil specific prerequisites in several IS/IT related domains, among others project management, IT controlling, and enterprise architecture management. If the required maturity level in each of these domains is not available, the implementation and success of the BM reference model is substantially jeopardized. Consequently, increasing the respective maturity is considered mandatory before applying the reference model. Table 5-4 provides an overview of all relevant IS/IT related domains; a detailed description is provided subsequently.

Table 5-4: Overview of IS/IT related domain prerequisites

IS/IT related domain	Required maturity level / characteristic	Rationale for the BM reference model
IT governance	Central IT organization	The role model and RACI matrix are based on a centralized IT department that provides all business units with IS/IT solutions. Other models (e.g. a federated IT organization) require different roles and committees, as well as modified accountabilities and responsibilities.
Project management	High maturity level	Each component of the BM reference model requires a high PM maturity, comprising standardized processes, tools, and project documents, sophisticated metrics and reporting structures, as well as mature PM roles.
Enterprise architecture management	Moderate maturity level	Moderate EA management provides a reliable documentation of the planned and existing EA. At several process steps (e.g. analysis and planning of benefits realization), the latter is necessary to identify all relevant business processes, IS/IT infrastructure components, and IS/IT solutions in relation to each anticipated benefit.
IT controlling	Moderate maturity level	The ex-ante benefits evaluation of an IS/IT project, regular measuring and reporting of the progress of benefits realization, as well as the ex-post review require at least a moderate maturity in IT controlling.

IT governance

The roles of the BM reference model and the RACI matrix are based on a central IT organization as the IT governance model. This type of organization employs a centralized IT department that provides all business units with IS/IT solutions. Each potential IS/IT project passes the same defined entry point, process steps, and milestones (Peterson, 2004, p. 10; Sambamurthy & Zmud, 1999, p. 262). Other models, such as a decentralized or federated IT organization, require different roles and committees, which decide upon the approval and implementation of IS/IT projects and other related activities (Brown, 1997; Sambamurthy &

Zmud, 1999, p. 263; Webb, Pollard, & Ridley, 2006, p. 4). However, these alternative bodies are not represented in the BM role model. They would also require another RACI matrix due to their different accountabilities and responsibilities.

Project management

Each component of the BM reference model relies on a high maturity level in several areas of project management (PM). While a mature PM provides standardized processes, tools, and project documents, it ensures that each IS/IT project has the same mandatory milestones and quality gates (Crawford, 2007, p. 52). All project related changes and issues are evaluated with sophisticated metrics and reported accordingly. Management and other stakeholders understand their roles in PM and execute it seriously, providing sufficient time and resources to projects while taking project reports intensively into account for project related decisions (CMMI Product Team, 2006, pp. 37–38; Pennypacker, 2001, p. 25). In summary, without the described representatives of PM maturity, the implementation of the IT reference model is severely hindered.

Enterprise architecture management

Already at the initial analysis and planning of benefits realization, a reliable enterprise architecture (EA) overview is necessary to identify all relevant business processes, IS/IT infrastructure components and IS/IT solutions that are positively (or even negatively) affected by each anticipated benefit. For this purpose, a reliable documentation of the planned and existing EA is needed, which might even foster the reuse of existing IS/IT components or prevent redundancies (Ahlemann, Stettiner, Messerschmidt, & Legner, 2012, p. 65; Schmidt & Buxmann, 2011, p. 7). To ensure the availability of such an EA overview, organizations should have a moderate enterprise architecture management in place.

IT controlling

The ex-ante benefits evaluation of an IS/IT project, regular measuring and reporting of the progress of benefit realization, as well as the ex-post review require at least a moderate maturity in IT controlling. In addition, dedicated mechanisms should be available and managed to update and improve the existing metrics for benefits measurement, based on the lessons learned from each IS/IT project (Farbey, Land, & Targett, 1999, pp. 249–250; Office of Government Commerce, 2009, p. 12). Finally, the role of the benefits controller requires the availability of an IT controller or at least a central controlling unit with IT related knowhow, which are typically only involved at a certain level of IT controlling maturity.

If these prerequisites are not fulfilled, the presented reference model is jeopardized, as it is not sufficiently implementable. Therefore, I recommend to address the mentioned prerequisites first, before implementing the BM reference model in the organization.

5.2 Implementation Guidelines

When an organization intends to implement the reference model, several aspects have to be considered: in general, no particular process steps or roles of the BM reference model can be excluded at its initial implementation. Benefits management is only successful, when its activities at the beginning of an IS/IT project (e.g., benefits identification, analysis, and planning) are already carefully executed, as these influence all subsequent activities (e.g., benefits realization, monitoring, and review). For instance, if a particular benefit is not properly analyzed nor its realization planned, stakeholders have no sufficient information about the required business changes and no adequate measures to monitor its progress. Furthermore, the implementation of the BM reference model usually causes significant changes in the initiation, implementation, and review of IS/IT projects. Consequently, it is related to behavioral changes and additional effort, so that most organizational units and stakeholders are typically expected to show some degree of resistance (Jurison, 1996, p. 271; Martinsons & Chong, 1999, p. 130). In addition, adequate support is needed in the application of the reference model and its integration with existing IS/IT related domains. To overcome these hurdles, the following practices are recommended.

Top management support is regarded a major success factor throughout the implementation. Therefore, it is essential to establish a certain understanding of the BM approach at the outset of its implementation. While top management support allocates valuable resources (e.g., people with required skills, time, decision power, etc.) to the implementation (Holland, Light, & Gibson, 1999, p. 275; Slevin & Pinto, 1987, p. 34), it also signals the importance of BM to managers and business units (Jarvenpaa & Ives, 1991, p. 216). Hence, it represents an important factor to promote the BM implementation and overcome stakeholder resistance.

It is also recommended to start the BM reference model implementation with a pilot project, which, if executed successfully, fosters the implementation and communication of BM in the organization. Stakeholders with an initially reluctant attitude toward BM may be easier convinced by this demonstration of its positive effect. For this the execution of a small to medium sized IS/IT project is suitable, which is related to one or two rather cooperative business units. For instance, this could be the implementation or modification of an IS/IT solution, as here benefit identification, realization, and measuring should be easier to accomplish. Other IS/IT projects, such as IT infrastructure related ones, include the risk of having benefits that are interwoven with several other processes and business units, making them rather difficult to identify, analyze, and measure (Jurison, 1996, p. 267; Ward & Daniel, 2006, p. 317). Moreover, such benefits might take several months or even years until they are realized and measurable in the organization (Jurison, 1996, p. 267). In summary, a successful pilot project can build the first cornerstone of an organization-wide implementation of the BM reference model.

To further convince stakeholders about the positive effects of BM, and to foster the understanding of the BM reference model itself, active and comprehensive communication throughout the organization is recommended (Clegg et al., 1997, p. 860). This endeavor begins with dedicated BM workshops, in which stakeholders are trained in the application of the BM reference model. In addition, general guidelines on BM and other supporting documents have to be provisioned at the organization. The execution of BM in IS/IT projects is also directly fostered by the provision of several BM experts, who support the project team with helpful advice regarding benefits identification, analysis, planning, etc. (Ward & Daniel, 2006, p. 249).

Finally, the BM reference model's components should be linked with other IS/IT related domains (see Section 5-1). For this purpose, it should complement the established PM approach, by providing a benefits-focus to the existing control dimensions such as cost, time, and quality. Furthermore, in combination with the IT governance model, it should be ensured that the BM reference model adds to the standardized PM processes, tools, and project documents and is consistently applied by all stakeholders. Consequently, BM-related activities and measures for instance complement the creation of project plans and business cases. Similarly, the EA management provides advice from enterprise architects along with all relevant EA documents for the benefit analysis and planning, while it documents related changes to the planned EA. Methods and tools of IT controlling should also be integrated with the BM reference model, making a benefits-orientation mandatory in the evaluation, measuring, and reporting of IS/IT projects. Although related measurement metrics and reports need not to be too sophisticated in the beginning, they should be consistently refined over time based on former IS/IT project results.

In summary the implementation of the reference model is considered a cumbersome endeavor, but its consequent application increases organizations' experience in managing a variety of IS/IT projects more successfully in the long run (Ward & Daniel, 2006, p. 199).

6 Formal Evaluation

As mentioned before, the BM reference model represents a first instantiation of the BM design theory, which is described in the previous essay. As such, no empirical evaluation of the reference model has been executed yet at specific organizations. Nevertheless, to ensure its validity, a formal evaluation in conjunction with the BM design theory is presented here, with the latter already being evaluated in practice. For this purpose, Table 5-5 provides an overview of how each design principle was instantiated in the reference model.

Table 5-5. Overview of the BM design theory instantiation

BM design principle	Instantiation in reference model
Principle CCS1: Establish an accountability framework for benefits realization	Benefit-related accountabilities are assigned in the process model (see process steps 2 and 6) and described in detail in the role model and RACI matrix
Principle CCS2: Establish a mechanism for dedicated benefits planning	Plans (rough and detailed) for the IS/IT implementation and benefits realization respectively are created in several process steps (see 2, 6, 9, and 10)
Principle CCS3: Define benefits-related goals and incentives	Benefits-related goals and incentives are defined and granted in the process model (see 4, 7, 13)
Principle CCS4: Conduct benefits measurement on a regular basis	The preparation, implementation, and improvement of benefit metrics and measurements is described in several process steps (see 3, 6, 8, 13, 14, and 15)
Principle CC1: Proactively communicate all relevant information on benefits management	Information about BM in general and upcoming changes for stakeholders are communicated at several steps of the process model (see 4, 5, and 8)
Principle CC2: Cultivate cross-departmental collaboration	Cross-departmental workshops, meetings, and commutation are established throughout the whole process model (see 2, 4, 6, 7, 8, and 13)
Principle CC3: Implement dedicated benefits change management	The benefits change management process represents a detailed instantiation of this principle and is also integrated in the process model (see 5 and 11)
Principle CC4: Implement benefits management in alignment with the organization's project management maturity	Depending on the particular organization's maturity in IS/IT project management, several process steps can be excluded at the beginning to facilitate the initial BM implementation

Notes: CCS = core control system; CC = control context

7 Conclusion and Outlook

The ‘knowing-doing’ gap between research and practice is a significant challenge in BM research; it is found to be partly due to the missing degree of detail and applicability in existing BM frameworks and methods. To address this issue, I set out to develop a reference model that provides organizations with detailed guidelines and activities on the successful realization of benefits from IS/IT projects. For this purpose, the reference model consists of a process model, a role model, a RACI matrix, and a benefits change management process model.

The findings of this paper contribute to research and practice alike. I extend existing BM frameworks and methods from academia with a BM reference model that offers novel practice-oriented process steps, roles, and activities. Furthermore, with this intention of increasing the adoption of BM by organizations, scholars can collect deeper insights into successful BM implementation and related phenomena in the future. Moreover, practitioners are given detailed guidelines on BM that exceed the lifecycle of traditional IS/IT project management guidelines. Organizations with a low maturity in BM obtain meaningful advice regarding necessary process steps, roles, and activities to successfully realize benefits. Furthermore, organizations with advanced experience in BM can uncover weaknesses in their implementations and identify further areas for improvement. Ultimately, the reference model can also be used by firms for the design of dedicated BM software, or for the definition of individual requirements.

Despite the contribution of my findings, several limitations have to be considered. In its current state, the reference model represents one possible instantiation of the BM design theory from my previous essay. Although the latter has already been evaluated in practice, the reference model itself is still missing an empirical validation. Therefore, I suggest that scholars build on my work and evaluate the reference model in the field, as this would bring up further refinements that contribute its impact toward successful BM. For this purpose, a multi case study might contribute further insights into the causal relationships of successful BM implementations and uncover further areas for improvement. Furthermore, the reference model currently only addresses IS/IT implementations at the project level, excluding process steps, roles, and methods on the program and portfolio level, which remain for future research.

Overall, in its current state, research on benefits management still has a long way to go, and a major success factor for meaningful studies and findings in the future is an increase of successful BM implementations in practice. Likewise, this would represent a great example of a fruitful translation of findings from academia into applicable and impactful concepts for practice. I hope that this reference model represents a first step in this direction.

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CONCLUSION TO

“SUCCESSFUL BENEFITS REALIZATION IN IS/IT PROJECTS – ESSAYS ON BENEFITS MANAGEMENT”

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1 Summary of results

In the course of this dissertation thesis, we investigated different aspects that ultimately contribute to the successful realization of benefits from IS/IT investments. To begin with, our literature review provides an analysis framework with four important perspectives on BM adoption (BM framework and method, BM user, BM governance, BM context) and has already been applied by other researchers (i. e., Terlizzi, Albertin, & de Moraes, 2017). Furthermore, we highlight relevant white spots in BM research and propose several areas for future research. In particular, we emphasize the underrepresented field on BM acceptance studies as well as the yet insufficient integration of appropriate governance structures and organizational context in BM research.

Based on the literature review and to further address this dissertation's first main research question, we investigated the determinants of BM acceptance on an individual level in a field study. In doing so, we developed a conceptual model and found that an individual's role in BM plays a major role in influencing BM acceptance's determinants. While individuals on higher organizational levels profit from better investment decisions and projects' benefits realization, lower level individuals might have fears regarding a performance comparison and its consequences, leading to a rather resistant behavior towards BM for the latter group of individuals. In addition, we also found organizations that characterize on outcome-orientation, team-building and learning from failures positively influence BM acceptance.

The second main research question is approached by the remaining essays: Our survey on BM provides a conceptual model that explains how value generation through BM practices is realized. In particular, it emphasizes the relevance of benefits planning and review practices, which are facilitated by the project team's business process knowledge and intense business-IT communication. Incentive management, in form of a moderator, is also found to have a negative influence on the benefits review practices' impacts on benefits realization success. The BM design theory complements these results. Among others, it addresses the problem of unclear accountability for benefits realization and organizational resistance to change. In doing so, it provides eight design principles, which combine control mechanisms that take into account the organization itself as well as its context. In accordance to our survey's results, we propose particular mechanisms for the planning and measurement of benefits realization, which have to take place in an organizational context supporting business-IT communication and proactive BM-related communication. Furthermore, the degree of the BM implementation should be aligned with organization's project management maturity to ensure a fluent integration. Finally, the BM reference model describes of a process model, a role model, a RACI matrix, and a benefits change management process model, which are particularly useful for organizations seeking for more detailed and applicable BM guidelines. While the reference

model represents a possible instantiation of the design theory, it's applicability is limited to organizations with several BM-related characteristics (i.e., a central IT organization, mature reporting structures, etc.).

2 Discussion

2.1 Contributions to research and practice

Each essay contributes to theory by advancing research on BM and providing novel findings on effective BM implementations. The topic of BM adoption is addressed by a our literature review's multi-dimensional framework, which classifies existing research into four perspectives. While the framework itself can be applied for further analyses, the classification of existing findings provides a sophisticated overview of over- and underrepresented research areas. Finally, we present a list of concrete ideas for future research on each of these four perspectives. The findings from our field study complement these results by contributing a conceptual model on BM acceptance. In particular, the model implements rather novel ideas by identifying the methodology-specific role and the organizational culture as moderating effects in an acceptance model. Furthermore, this role construct shows that different users in an organization perceive BM differently, which is an extension of classic theoretical explanations of acceptance behavior (e.g., Ajzen, 1991). Investigating the successful implementation of BM, the results of our survey relativize the importance of some BM practices proposed in literature while adding considerable moderating effects, and thus provide novel insights in terms of quantifiable generalizability. In addition, this study is one of the first confirmatory, quantitative studies on BM that provide quantitative evidence of how strategic IS/IT projects should be managed to successfully realize benefits. While the design theory represents a novel theory-grounded artifact in BM research, its design principles and especially testable propositions add to the nascent theoretical body of knowledge on BM in particular. Furthermore, we tackle the challenging issue of organizational resistance to change with multiple design principles grounded in sophisticated concepts from organizational control theory, which have not been utilized for BM before. Finally, the reference model challenges existing frameworks and methods from academia by presenting more detailed, comprehensible, and applicable guidelines on BM. This way, scholars can collect deeper insights into successful BM implementations and related phenomena in the future.

From a practical point of view, the essays' contribution addresses the successful adoption as well as implementation of BM. Practitioners are provided an overview of important dimensions of BM adoption, which helps to assess their own BM implementation from several perspectives. Furthermore, based on the literature review itself, they can discover and apply further practices that were previously not part of their BM implementation. In relation to our conceptual model of BM acceptance on an individual level, they are provided a beneficial understanding on this topic and can derive appropriate guidelines to increase an organizations employees' BM acceptance and subsequently increase their IS/IT projects' success. The remaining essays help practitioners to understand the nature of successful BM and to implement

it effectively. They can apply our BM survey's results to prioritize BM implementation activities and assign their scarce resources accordingly. Complementary, the BM design theory's principles and testable propositions can be used as lenses to understand why an existing BM implementation is not delivering the anticipated benefits. In particular the design theory provides meaningful findings on how to steer the realization of benefits in the organization and overcome typical challenges like lacking business IT collaboration, stakeholder resistance, inadequate benefits measurement, etc. While those organizations with a fairly low BM maturity can identify the relevant practices to promote first, other organizations can foster the most relevant practices and can thereby increase their benefits realization's success. Ultimately, the BM reference model provides concrete and detailed guidelines on BM that exceed the lifecycle of traditional IS/IT project management guidelines. Organizations with a low maturity in BM obtain meaningful advice regarding necessary process steps, roles, and activities to successfully realize benefits. Furthermore, organizations with advanced experience in BM can uncover weaknesses in their implementations and identify further areas for improvement.

2.2 Limitations

Despite these contributions, several limitations should also be acknowledged. Although each essay's individual limitations and future research opportunities were recognized, some of these limitations require a further discussion in the entire context of this dissertation. One limitation stems from the fact that most investigated organizations were still rather immature in regards to their BM-related activities. Although each organization had, at minimum, particular methods for benefits identification and review in place, no evidence was found for the existence of a comprehensive BM approach as described in the Cranfield BM process model (Ward, Taylor, & Bond, 1996). Furthermore, as a large portion of the applied research methods was based on qualitative research such as field studies with interviews, this might influence the results' validity to a certain degree. In particular, the proposed artifacts (Essay 4 and 5) would benefit from an application and evaluation in more large-scale settings, like in a multiple-case study design that would allow for analysis of similar and diverse cases towards a deeper understanding of successful benefits realization.

2.3 Suggestions for future research

Based on the limitations, several suggestions for future research emerge that we want to encourage other researchers to pursue. As mentioned before, most organizations were missing a sophisticated BM implementation. Thus, it is of prior importance to collect data from more mature organizations regarding BM. Furthermore, taking BM's diverging impact depending on an individual's role in the organization (low-level vs. high-level) into consideration, a large sample of employees from different organizational positions would be most appropriate. Based on specific control variables, these employees could be divided into separate groups and their

differences and similarities analyzed. As previously mentioned in the limitations, a multiple-case study design would particularly allow to evaluate our artifacts in practice. This would also enable the data collection from additional sources, such as documentation or observations to corroborate the results of our investigation. As we particularly applied organizational control theory in the context of BM, we want to encourage scholars to continue research in this direction and improve the steering of benefits realization.

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WORD OF HONOR

I declare with my word of honor, that I am the sole author of this thesis. The exceptions to this are the section for which one or more co-authors were involved; these sections are explicitly identified and the names of the co-authors are completely and truthfully listed. I confirm that I made a significant contribution to the sections for which one or more co-authors were involved that justifies my own co-authorship.

The work was completed using only the cited sources. All information taken directly from source material or ideas based on information taken from source material have been clearly identified through the cite references. The thesis in the same or similar form has not been submitted to any examination body.

Essen, June 9th, 2018

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Florian Hesselmann