

A Design proposal for a Benefits Management Method for Enterprise System Implementations

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Abstract

Enterprise Systems (ES) involve relative high investments and long-lasting implementations for its adopters. A business case (BC) is often developed in the beginning to evaluate and justify this investment. This BC explains the expected costs, benefits and risks of the ES implementation. In this paper we especially focus on the problems of the current BC development and present a design proposal based on Benefits Management (BM). Research in cost estimation is matured and BM is perceived as a standard in this domain. We use an iterative design science approach to create our proposal. First, we give a structured overview of current BM methods both from practitioners as well as academia using the methodological framework of Avison and Fitzgerald [1]. Second, we derive our own improved BM method based on the work of Ward and Daniel [2]. During the development process, in five iterations, we interviewed and collaboratively worked with experts towards this method.

1. Introduction

Enterprise systems (ES) implementations are extensive projects supported by implementation methodologies from vendors or larger advisory organizations. In the first stage of an ES implementation mostly a business case (BC) is developed to justify the ES implementation investment and possibly calculate cost and benefits. Benefits management (BM) is an approach to identify, plan and manage the delivery of benefits. Clear benefits identification, or a detailed plan on how expected benefits will be realized, are essential at the inception of a project. Such a plan is used to manage the project execution and to review progress and achievement both during the project and its completion [3].

Several approaches to BM have been developed in order to guide projects through a controlled, well-managed set of activities to achieve the desired benefits. A systematic review of the BM literature by Braun, Ahlemann and Riempp [4] reveals that the pioneering work of Ward, Taylor and Bond [5] has structured the discipline and has been adopted as a basis by other researchers.

In this paper we argue that BM is especially important for ES projects, as their implementation typically is very complex, covers a long time span and extensive investments. In the beginning stages of the project it is difficult to predict cost and benefits as exact process design -and system functionalities are specified later in the subsequent project stage. On the other hand, ES typically offer a preconfigured “fixed” environment. This implies that process definitions and system functionality can be predicted too a high degree of certainty, different from custom made software. The current corroborative knowledge of ES implementations and its installed base give a good indication on the effects of specific design decisions on process, functional and infrastructural levels [6]. Thus BM enables to gradually specify benefits during a recurring process and can be deployed as a suitable method during the chartering and project stages of an ES implementation.

Based on the conclusions of two decades specific research we take a different approach to BC deployment in ES implementations in this paper. We propose to take a wider focus than cost/savings, package selection, system -or package functionalities, but look into the potentials of extended BM. We aim to improve the support for BM, so that it can become a standard such as cost estimation methods are already. Our research goal is to: *Adapt current IS-benefits management methods to the ES implementation domain by extending their functionality and making them more applicable for practitioners.*

In this paper we follow design science as main paradigm for our research methodology (§2). We first provide a condensed overview of the main concepts from literature used in this paper (§3). As foundation for our design cycle, we afterwards (§4) present a review and comparison of current benefit management methods developed by researchers and practitioners. Our comparison uses method requirements identified in prior research as input and is structured along the framework of Avison and Fitzgerald [1]. Based on this analysis we identify one BM method as being most complete and fulfilling most of the earlier specified requirements. However, this method still has shortcomings. In our next step

(§5) we set out to iteratively enhance the method using six in-depth interviews with experienced consultants. The result of this design cycle is presented in section 6. Interviews with experts provide a first validation of the method (§6.3).

2. Research method

Our research takes a design and development centered approach [7,8]. In this paper we deploy three steps from the DSRP model [8]; 1) Problem identification and motivation; 2) Design and development; and 3) Evaluation. In our research project we are not able to simulate or demonstrate the designed artefact, because of limitations in the empirical part of our study. Nevertheless, we are able to iteratively design, evaluate and improve our design artefacts together with practitioners.

We deployed the DSRP model as follows:

1) Problem identification and motivation: Our design cycle starts with a structured literature review, that we conducted following the guidelines by Webster and Watson [9] to identify the relevant literature. We used the following search terms: “benefits management”, “benefits realization”, “value management”, “value engineering” and “enterprise system”. We used the databases provided by Google Scholar, Scopus and Science Direct to find academic articles, and Google as search engine to find white papers and practitioner reports not listed by the previously mentioned sources. Our extensive literature search resulted in 80 papers that discuss IS BM. This set of papers is used as foundation for our benefit method comparison. In order to select the papers that include relevant input for our method comparison and improvement proposals, we applied the following inclusion criteria: i) the authors describe a BM concept that can be classified as method, methodology, model or framework ii) the paper not only discusses BM in general but also one or several phases (identification, realization, assessment) in detail. This resulted in 17 BM methods, sometimes described in several papers, building upon each other. The methods stem from both scientific initiators as well as commercial advisory organizations.

2) Design and development: After this founding research work we use the framework developed by Avison and Fitzgerald [1] to compare the different methods. We take the Ward and Daniel [2] method as foundation and set out to first improve the method using the insights from literature. Afterwards, an iterative approach is used to improve the BM method by conducting 6 in-depth interviews with experts from the advisory industry. Each interview resulted in an adjusted version of the improved BM method. The experts were approached after a workshop on building IS BCs and volunteering to participate in

follow up research. Although this did not provide an unbiased opinion on determining benefits in IS BCs (as they were not randomly selected), it made sure that all of the experts had relevant experience in IS BCs. In order to get diversified insights from the experts, professionals from five different advisory companies were selected. We selected mature experts with a variety in BC development competences and different thinking paradigms. Some of the experts were arguing in a functionalistic paradigm, others used an interpretative paradigm when discussing the method with us. Information about the experts, their experience and relation to IS BC development is given in Table 1.

Table 1. Interviewed experts

Expert	Occupation (Job function)	Experience with IS BC	
		Competence	Time
A	Freelancer	Creating / Approving / Implementing BC	> 10 years
B	Consultant	Implementing BC	10 years
C	Manager IT-governance	Judging BC / outcomes	> 10 years
D	Solution Architect	Creating BC	5 – 10 years
E	Partner IT-Advisory	Judging BC	> 10 years
F	Manager ERP Advisory	Creating/ implementing BC	> 10 years

Before the interview, each interviewee was provided with a document explaining the BM method, which he was supposed to review. During the interviews the authors used semi-structured questions to discuss the different aspects of the method with the experts. The interviewees were invited to ask questions, request for clarifications and provide feedback. Each interview lasted between 60 and 90 minutes. Our research approach is beneficial as we got the opportunity to involve 6 experts from different organizations and background in an iterative design cycle over a longer period of time. This is valuable as we really got relevant contributions from an empirical point of view. A sample size of six experts has its limitations and a larger sample size would increase the validity of our research. However, our deliberate deployment of the iterative design cycle limits the sample size due to time. In our design process we observed a saturation point after the sixth interview. We believe that the internal validity of our research approach is covered by the cyclical manner. The experts gave arguments and commented on the design adjustments and each others proposals in 5 iterations until saturation was reached. We define saturation as the point where there are no significant design changes requested by the involved experts. We make however the note that

interviews with different experts might have lead to a different saturation point.

3) Evaluation: We conclude the design cycle by evaluating the design proposal with a fixed set of interview questions to all involved practitioners. The insights gained during the interviews were collected; coded and following the method and its accompanying documents were updated after each iteration. The coding of the interview script was done independently by two of the authors. As expert E and F were interviewed together, we had in total five iterations to improve the method. We will report on the improvements made during each iteration in §5.

Besides the value of our approach we also are aware of the limitations of our design approach. We do not test the design proposal with a different set of experts and this limits the external validity of our proposal. Nevertheless, the variability of the involved experts partly compensates this effect.

3. Theoretical background

We will first provide a short introduction into BCs and then give a detailed definition of BM and its deployment during the ES implementation process.

3.1. The business case

‘Business case’ is an ambiguous term often used by practitioners to refer to the relatively simple cost-benefit calculation being done for many management decisions. The BC describes and guides the evaluation of different implementation options, based on the expected costs, benefits and risks of each option. It specifies mostly generic properties and a desired functionality of the to be implemented IS and it also explicates how the IS will be embedded into the business operations. The BC will further explicate how the project will contribute to specific business goals. The BC should include the methods and rationale that were used to quantify the benefits and costs [10] and not only explicate the mere financial analysis of an implementation option. Further important BC elements to be included are: non-financial costs and benefits, a description of the project planning, an overview of how the system will be implemented, which changes are required and how the scope of the project fits within the existing strategy of the organization. The specification of the non-financial benefits seems to be an especially challenging task among those elements, as recognized by both researchers and practitioners. The distinction between observable, measureable, quantifiable and financial benefits has been proposed as a solution to this challenge [11] and will be discussed in this paper.

3.2. Benefits management

Benefits explicate the advantages that each different solution scenario of a BC is expected to deliver in detail. A business benefit can be defined as “an advantage on behalf of a particular stakeholder or group of stakeholders” [2]. BM in the IT implementation domain is “the process of organizing and managing such that the potential benefits arising from the use of IS/IT are actually realized” [2]. The decision of the management to evaluate IT investments before and after they occur is one of the factors that separates successful from less successful companies in their IT deployment. This shows the potential impact of BM for companies who do not evaluate their IT investments in such an extensive way.

Research on BM dates back to the mid-1990s to an empirical study on industry practices in the UK [5]. The results of this study showed that many organizations were not satisfied with the available methods for realizing benefits and presented the Cranfield benefits management process model as a first solution to this problem.

A structured literature review [12] on various ES investment benefits shows that current benefit frameworks pay limited attention to contextual and temporal variations, business changes, and levels of benefit realization. Further, current studies provide limited insights into how the variations in motivations for undertaking an ES project influence the expected and realized benefits. Our literature review shows that recent literature on benefits does not provide a complete view on identifying, realizing and assessing ES benefits. Some authors identify benefits according to their characteristics, but they do not give guidelines for benefit realization and assessment [13]. On the other hand, those who discuss benefit realization and assessment, do not discuss the identification of benefits [14,15]. Shang et al. [13] provide the most complete benefits list from all benefit categorizations [16]. In each benefit categorization a distinction can be made between tangible and intangible benefits [17]. The latter financial or tangible benefits often are measured by the use of Key Performance Indicators (KPI’s). Measuring and quantifying intangible benefits is often phrased as substantially more difficult and this issue still needs to be solved.

Following this analysis, we conclude that the limited scope of existing benefits frameworks asks for a more holistic and detailed analysis of ES benefits and such an analysis should be dependent on the characteristics of the benefits. The analysis should be embedded in BM [2] to help organizations in understanding when and where in the ES implementation process benefits are currently realized and where and how they could potentially gain more benefits. In order to realize the expected benefits it is important to specify them early in the

process and also explicate the necessary business – and organizational changes during the ES implementation [3]. These changes are directly related to the motivations or drivers behind the IT investment. Classification of these drivers may help to further tailor and specify the BC development process including the necessary methods or tools.

3.3. Implementation methodologies – BM deployment during the ES implementations

Current ES implementations are accompanied with extensive implementation methodologies from either the vendors or large implementation partners. These methodologies follow the generic staged wise implementation approach [18] and include various instruments and tools [1922].

Our literature review shows that academic research on the deployment of BCs during ES implementations is still limited and that many companies consider the support that BCs can deliver during ES implementations insufficient. Nevertheless, the limited publications are unanimous that the deployment of the BC during the ES implementation follows a generic pattern [2325]. BC deployment is focused on the chartering stage, whereas extensive implementation research shows the project stage to be of substantial influence on the implementation outcomes and thus the cost and benefits. Currently the BC deployment is often used to obtain funding approval for the huge up-front financial investment and not to actively manage the project throughout the entire life cycle.

Many organizations do not demand precise justification of their investments and, thus, leave benefits imprecisely formulated and overstated. As a result, many companies consider the support BCs bring during ES implementations insufficient. One reason for this is that current BC's often omit non-financial benefits. Including those could take away dissatisfaction. BC's could be more useful if they would not solely be used to obtain funding approval for the huge financial investment, as it is done at the moment, but also for actively making decisions about project continuation [23,24]. A BC exists to ensure that, whenever resources are consumed, these support one or more business objectives. This implies that a BC should be reviewed at the various stages during the IT lifecycle. Another important issue to consider is that only during the onward and upward phase when the ES system is in operation most benefits get actually realized [18]. We expect that part of the dissatisfaction with BM can be explained by the missing focus on this last phase. Thus, it is important to consider a larger investment horizon when specifying and managing benefits.

In the prior section (§3.2) specification of quantitative benefits BM was related to KPI's. Current ES implementation methodologies offer the

use of KPI's to guide the business process reengineering process. For this study we also investigated two vendor ES implementation methodologies; i) SurestepV2.1 (Microsoft) and ii) ASAPV7.1 (SAP). From the available material we see initiatives towards a more iterative and benefits focused way of working. E.g. SAP offers a “Value Engineering” approach, but we have no scientific evidence of its deployment and effects. Still, KPI based value specification and redesign is a good starting point for BM as add-on to implementation methodologies.

Concluding we see little evidence in scientific literature of the extensive deployment of BM in ES implementations and also the BC development process mostly is described as a one time affair, mostly to justify the investment decision. Literature does exemplify the potentials of BM, and structures it according to specific ES characteristics [6]. Our empirical related research shows that practitioners already seem to embrace the recurrent concept as two leading ES vendors include a more iterative BC development approach in their implementation methodology.

4. Review of current BM methods

Researchers as well as practitioners have developed a variety of BM methods based on the early work by Ward et al. [5]. However, BM research can still be described as an evolving discipline. A literature review by Braun et al. [4] identified 74 papers published between 1990 and 2007 as being highly relevant to BM. They also found that the interest in the topic is growing. However, of the articles identified most research focuses on general IS/IT investments and very little literature deals with ES implementations. Combining the results of this literature review with our own literature review we identified and compared 17 BM methods, as shown in Table 2. We use the framework by Avison and Fitzgerald [1] to compare the different methods. This framework distinguishes seven characteristics: philosophy (paradigm, objectives, domain and target), model, techniques and tools, scope, outputs, practice (background, user base, players) and product.

4.1. Method characteristics identified in literature and practice

We use insights from theory and practice to identify characteristics that successful BM methods for ES implementations should include. In our literature search we identified a variety of critical issues to be influential on the success of a BM method. We complement this list of characteristics by collecting input from experts: We asked experts

from ES adopting organizations, in a focus group setting, to reflect on critical issues and success factors for BM. We further conducted a survey among 59 experts from the advisory industry to learn about their demands on a successful BM method. Besides the collection of critical issues the experts were asked to assess the importance of each of the characteristics. However, a detailed discussion of these design specifications is out of the scope of this paper. In this paper we will only provide the four characteristics that were considered most important by the experts. The description and analysis of the characteristics is available upon request from the authors. The four characteristics that were considered to be most important for the success of the BM method are:

- Ability of the method to correctly quantify benefits
- The method must not be too abstract and

- Ability to integrate the method with exiting business processes and key performance indicators (KPIs).

We use the rated list with important elements for three purposes: a) We use them as input for our first method comparison and evaluation that results in a short-list of four methods, described in §4.2. b) We use them as basis for a second focus group discussion where the experts compare the four methods from the short-list in detail and select one method. c) We consider them as “requirements” for our first enhancement of the improved method presented in §6.

4.2. Comparison of methods

We used the four characteristics to analyze the 17 BM methods on if they sufficiently address the

Method (main reference)	Philosophy ¹	Target	Model	Techniques and Tools	Scope: Identify ²	Scope: Realize ²	Scope: Assess ²	Scope: Quantify ²	Outputs	Practice ³	Product(s)	Roles ³
Ward, Taylor, & Bond, 1996	B	IT	Process model, verbal guidelines	Conceptual model, tools for PM	√	√	√	√	Documentation for PM, reports	A	Book, academic papers, tool	√
Shang & Seddon, 2002	H	ES	Verbal classification	Classification techniques, graphs	√	√	√	√	Classified benefits, benefits graphs	A	Academic papers	×
Chand, Hachey, Hunton, Owosho, & Vasudevan, 2005	H	ERP	Verbal classification	Classification techniques, BSC	√	×	×	√	Classified benefits, balanced scorecard	A	Academic paper	×
Remenyi & Sherwood-Smith, 1998	B	IS	Process model, financial model, verbal guidelines	Organizational techniques, tools for PM & Finance	√	√	√	√	Documentation for PM, quantified benefits	A	Book, academic papers	~
Gunasekaran, Love, Rahimic, & Miele, 2001	S	IT	Analytical model	-	√	×	~	√	Verbal benefits documentation	A	Academic papers	×
Andresen, et al., 2000	H	IT	Process model, verbal guidelines	Measurement technique	√	√	√	√	Quantified benefits, evaluated benefits	A	Academic paper	~
Giaglis, Mylonopoulos, & Doukidis, 1999	S	IS	Process model, verbal guidelines	BPM (Modeling), BPS (Simulation)	√	×	×	√	As-is model, to-be model	A	Academic paper	×
Changchit, Joshi, & Lederer, 1998	S	IS	Descriptive process model	-	√	×	×	×	-	A	Academic paper	×
Ashurst, Doherty, & Peppard, 2008	S	IT	Process model, verbal guidelines from literature	Many referenced from literature	√	√	√	√	-	A	Academic papers	×
Schubert & William, 2009	S	ES	Verbal classification	Taxonomy of benefits	√	×	×	×	Classified benefits	A	Academic paper	×
Yates, Sapountzis, Lou, & Kagioglou, 2009	B	IT	Process model	PM software tool	√	√	√	×	-	A	tool, academic paper, consultative guide	×
Thorp, 2003	S	IT	Verbal (process) guidelines	Conceptual models, tools for PM	√	√	~	~	Documentation for PM	C	Book, training	√
Office of Government Commerce, 2009	S	Any project	Verbal process guidelines	Tools for PM	√	~	√	~	Documentation for PM, reports	C	Book, training, certification	√
Office of Government Commerce, 2007	B	Any project	Process model, verbal guidelines	Conceptual models, tools for PM	√	√	√	√	Plan or report after each phase, quantified benefits	C	Book, training, certification	√
Bradley, 2010	B	Any project	Process model, verbal guidelines	Conceptual model, tools for PM, measurement and organizational techniques	√	√	√	√	Plan after each phase, quantified benefits, documentation for PM, reports	C	Book, training, software tool	√
Melton, Iles-Smith, & Yates, 2008	B	IT	Process model, verbal guidelines	Conceptual model, many tools for PM	√	√	√	√	Documentation for PM, reports	C	Book	~
IT Governance Institute, 2008	H	IT	Process model, verbal guidelines	Tools for PM	√	√	√	×	Documentation for PM	C	Book	√

include practical tools

- Ability of the method to clearly assign responsibilities for benefit identification, measurement and realization

¹ H = science paradigm (“hard” thinking); S = systems paradigm (“soft” thinking); B = both paradigms

² √ = subject is discussed; ~ = subject is briefly discussed;

× = subject is not discussed

³ A = Academic, C = Commercial

issues identified by researchers and practitioners (Table 2). The source references of the methods are available upon request. Two researchers independently scored the methods on actual support for the stated factors (a complete overview of this analysis is available upon request). Our analysis shows four methods significantly distinguish itself from the total of 17 methods in completeness: Cranfield Process Model of Benefits Management [5], Managing Successful Programmes - Benefits Realization Management [26], Benefit Realization Management [27], Project Benefits Management [28]. To select the final foundation for our improved BM method design cycle we organized a detailed discussion including a multi-criteria analysis of these four methods with the focus group, mentioned above. The method by Ward and Daniel [2] was unanimously selected as the most complete as it fulfills most of the criteria identified from literature and by practitioners.

4.2.1. Cranfield benefits management method.

The Cranfield process model of benefits management method [2] is derived from business practices and therefore serves as a solid base for an improved IT BM method. Its basic activities are:

- Identify company goals / critical success factors / KPI's
- Structure benefits and goals by building a benefit dependency network
- Identify benefits, measures, and benefit owners
- Structure the benefits on type of business change
- Structure the benefits on degree of explicitness

Evaluating the method using the criteria identified above and discussing it with the experts of our focus group we found that the method still has some flaws and does not address all issues that our literature search pointed out to be important. The most important shortcomings identified are:

- Experts perceive the benefit dependency network as complex. A more straightforward connection between the benefits, goals and drivers of the project is demanded.
- The method pays limited attention to contextual and temporal variations.
- Although the method provides guidance on the classification of benefits, there is hardly any guidance on the initial identification of benefits, e.g. possible areas where benefits can be expected that support actors in the initial brainstorming are missing. This is an important

aspect, as without it the whole method will be based on an incomplete set of benefits.

We addressed these issues in a first improvement of the benefits method by Ward and Daniel [2], which we then used as input for our expert interviews that incrementally enhanced the method further. Due to space limitations we will only present the final version of the enhanced method (§6) and not the outcome of each iteration. We will however discuss the changes made during each iteration (§5).

5. Iterative enhancement of Cranfield method

In our ambition to create an applicable extension to the work of Ward we involved six experts in our method development process. We followed an iterative interviewing and participatory approach in which we presented the interviewee the “current” version of our method and in five separate cycles collaboratively improved the method based on their feedback and stated requirements. This section presents the findings of the interviews, and the changes made during each iteration to improve the method (columns in Table 3). As the last two experts were interviewed together in one session, we had five iterations in our design process. We present the improvements during each iteration in the categories by Avison and Fitzgerald [1].

Considering our method development process it is clear that the practitioners mostly contributed on the techniques and tools category. Based on the analysis of the changes made during each iteration we observe that most (14) and the most extensive of the in total 22 improvement suggestions were made during the first two iterations. Thus, we observe that our enhanced method becomes more stable towards the end of our design iterations as the contributions become less extensive in range and more practical until finally, a saturation point is reached. In the beginning of our design process mainly extensive changes in techniques were proposed whereas in the final cycles the interviewees emphasized more the outputs and products of the method.

Finally, we observe that the philosophy category is strongly related to the paradigms of each individual interviewee. This is illustrated by the perception of “freedom” shown in iteration four. This is inherently tied to the philosophy concept itself and our method improvements therefore adopts the situational method engineering principle [29] to allow practitioners to deploy the method according to their individual paradigm, knowledge and the situation at hand.

Table 3. Iterative improvement of the method					
Avison category	Changes made to the method during each iteration = requirements for a method				
	Iteration 1	Iteration 2	Iteration 3	Iteration 4	Iteration 5
Philosophy	Use the method as reference guide for the BC; Also include method as support for the group process; Add reasoning behind foundational steps			Specify viewpoint of the method; Increase flexibility of the method to create more “freedom”	
Model		Include business change required to achieve each benefit			Add technology change to business change for each benefit
Technique and tools	Delete step on benefit dependency network to reduce complexity; Describe / mitigate potential risks	Add: probability, frequency, dependency between benefits; Increase measurement explicitness	Use method to determine the state of project		Specify benefit realization time span
Scope				Focus on goal determination	
Outputs				Carefully treat information disclosure	
Practice		Divert ownership & subject matter expert; Make owner accountable			
Product		Add information on the setting in which the method can be executed			Provide better examples that help guiding the process

6. Presentation of the enhanced benefits management method

After analyzing the methods currently available in literature, discussing their limitations and collecting requirements from practice, we are now presenting the result of our iterative method enhancement design process. Detailed guidelines are available upon request from the authors. Our method is build to support the determination of the benefits of an IT driven BC. We will focus only on BM and do not provide guidelines to identify the reasons and goals behind a project. We assume that once our method is used this information is already given.

6.1. Benefits management process

We will first describe each step of the four-step method. Afterwards we will discuss in which context the method is expected to be of use.

- **Step 1- Get everybody thinking in the same direction:**

During the first step of the method, participants should reach agreement over the direction they are heading to with the project. For this purpose among others organizational goals, critical success factors (CSF) and KPI can be identified. The goals (which are assumed to be given by the project owners) can serve as input for a discussion about which means and solutions are needed to reach the goals.

Discussions about which CSF and KPI are considered important to manage and measure the success of a solution implementation can help in creating consensus amongst the participants. Further, it might be useful to identify the drivers behind the project. In the case of a problem driven (bottom up) project, a problem identification should be formulated, which is to be solved by this project. In the case of a strategic driven (top-down) project, the organization vision and mission should be specified.

- **Step 2 – Benefit specification process:**

The goal of this step is to start a discussion on what benefits can/will be achieved and by what means. Before one can use the benefit specification framework shown below, all possible benefits of the projects should be collected. This can happen during an unstructured brainstorming session or using a more structured framework [16], which can help the participants to identify all applicable benefits and not just the ones that come first to their minds. No matter which method is used for the benefit identification, it is important that the list of benefits is as complete as possible. For each identified benefit the table shown in Figure 1 can be filled in, starting on the left with mentioning the benefit and finishing on the right with estimations of the time span, probability and frequency in/ with which the benefits is going to be achieved. Going through each step of the method will help creating a discussion and will thereby make the benefits more clear and precise. The method should be seen as a collection of blocks that can be specified if needed, but do not need to necessarily.

Benefit	Benefit owner:	Classification of change Do new things (grow the business):	Required business changes Process level:	Measurement of effect Financial:	Time span:
	Subject matter expert:	Do things better/ cheaper/ faster:	People level:	Quantifiable:	Probability:
		Stop doing things:	Organizational level:	Measurable:	Frequency:
			Technology level:	Observable:	
					

Figure 1. Benefits Management Process

We will provide more information on this issue in §6.2 discussing the context of the method.

- **Step 3 – Check if benefits match goals:**

Connect the benefits found in step 2 to the goals found in step 1, to make sure that the project in the end will reach its initial goals. By trying to connect the benefits to the goals it becomes clear whether, and by which means (benefits), each goal can be achieved. If there are benefits that do not contribute to a goal, the initial goals should be discussed and maybe extended. If there are goals, which are not supported by benefits, step 2 can be repeated or the relevance of the goal can be re-examined.

- **Step 4 - Dependencies between the benefits:**

The goal of this step is to make sure that the benefits listed do not exclude each other. This step is also beneficial for determining the importance of the benefits and assigning a sequence in achieving the benefits. Dependencies between benefits can be determined by e.g. drawing a connection between related benefits and assigning the amount of coupling to them. For each negative dependency, the most favorable for the goals (step 1) will be chosen.

6.2. Context of the method

Our proposed method serves two objectives; i) to start the discussion about achieving benefits by implementing an ES, ii) to specify these benefits and match them with the ES specific design decisions. Current ES implementation methodologies are a generic shaped project management container based on the staged waterfall process. They include a vast number of methods and tools that can be applied situational specifically and often in relationship with the ES package specifics. Our redesigned BM method fits the generic container and is not designed to the characteristics of one specific ES vendor.

The structure and deployment of the method is based upon the concept of method fragments and the situated method engineering approach [29]. Scholars in the method engineering domain state that it is more important to initiate a knowledge exchange process on the method and its parts than to meticulously define the structure and method

deployment in advance. This fits with the different experiences and paradigms of practitioners.

Nevertheless our method includes two important principles, because it is crucial to update the BC throughout the ES life-cycle [18]: i) its recurring dynamics and deployment from the early start of the implementation and ii) a gradual increase in the amount and accuracy of benefit specification towards go live. An exemplary deployment of the method can be illustrated as follows:

The method can be initiated by a collaborative workshop setting in which this method itself is discussed and can be used to structure the brainstorming process. In this workshop, participants from different disciplines within the organization should be involved. Required are people with authority and power to initiate changes in the organization, but also subject matter experts. Our method encourages the users to update the benefits during the ES implementation process. In its deployment we see a typical relationship or even integration between appointing design decisions and assessing benefits. In other words each time a project team significantly alters or decides upon e.g “an end to end” business process design a cycle of the BM method is required. The objective is a relatively short time activity to focus on updating the expected time span, probability, frequency of the benefits and if possible the direct relationship with design decisions. The latter can be supported by the use of KPI’s, a typical generic ES benefit structure [6], a benefit framework [16], or a combination of these. At the end of the project the realization of the benefits should be evaluated focusing on the experienced business changes, the final measurement of effects and the time in which the benefits were reached.

6.3. Initial validation of the method

Our iterative development of the improved BM method provided us with early validation possibilities, as the requirements identified by one expert were included in the method before the interview with the next expert, who in turn validated the improved method. This process was repeated until a saturation point was reached. In order to

validate the method, we asked all experts about their opinion on general usability, understandability, guidance and efficiency of the method.

The evaluation of the method by the experts was positive, as most of the experts (80%) would use the method when requested to assess the benefits for a BC during an IS implementation. Especially the ease of use and the flexibility of the method were rated positively, as it gives the practitioners the possibility to use the method as a toolbox, instead of a fixed series of steps/tools. All experts were satisfied with the level of guidance provided by the method and evaluated the method as having “good” understandability. They perceived the step size, and the language in the method as adequate. Experts further valued the explanation about the “reason of existence” for each step, as it helps practitioners to use the method as a toolbox. 80% of the experts rate the method as efficient as they state that the potential results of the method outweigh the effort and time required to use it. However, they also indicate that the efficiency will depend on the type and size of the BC in which it is used.

6.4. Discussion

Comparing the initial benefits method by Ward and Daniel [2] with our enhanced method after 5 iterations, we can observe several improvements. These improvements address the design specifications listed in §4.1. First, there is a difference in the level of complexity. The initial method uses a complex “Benefit Dependency Network” to structure the goals and benefits of a project. The enhanced method has replaced this technique by several smaller and more accessible steps. We further observe a difference in the amount of guidance by the methods to the user. The enhanced method offers additional guidance that explains in each (sub) step; the reason to execute it, how to execute it, and the potential problems that might occur during the execution. Further, the enhanced method provides improved support for the initial benefit identification, supported by a list of potential areas for benefit identification. Such a framework [16] not only simplifies the benefit identification process but also increases the completeness of the identified benefits.

The method by Ward and Daniel [2] provides a good basis for BM, nevertheless several factors have been added throughout the redesign process: In addition to a benefit owner, a subject matter expert was added. Furthermore, a more specific time line, and the probability and frequency of occurrence of benefits have been added to the method. These factors encourage practitioners to have a more detailed discussion about each benefit, thereby increasing the quality, measurability and completeness of the benefit.

Further, we added a step (step 4) that specifies the dependencies between the benefits. Adding this step provides practitioners with the means to determine a prioritization of benefits, in the case that not all benefits can be achieved, due to limited resources. It further helps in finding and eliminating conflicting benefits, thereby improving the ability to realize the proposed benefits. Our enhanced method is especially designed to open up the flexibility towards its users (see contextual discussion in §6.2). We see it more as a toolbox, with components that can be freely applied by practitioners, depending on their context and project-specific needs.

7. Conclusion

IT implementations need a BC, but currently the BC lacks a balanced approach in cost versus benefit estimation and also in most situations is a one-time affair. Ample research shows that the success rate of IS implementations could be improved when a) the BC is deployed in a more iterative manner and b) more focus is put onto BM. Once practitioners are aware of the balance between identifying costs and benefits, BM can reach the same maturity level as cost estimation methods. The latter is gradually becoming reality, but our collaborative design cycle shows that the techniques and tools in current BM approaches need enhancements or in some cases additions to support this development. Besides practitioners show that they desire to deploy the method according to their paradigm, experiences and the BC specific context.

Our method design process follows the DSRP model [8] and addresses shortcomings identified by literature and practice. Based on several iterations with experts we propose an improved BM method that has a strong focus on the identification, classification and quantification of benefits. It further includes a step to determine interrelatedness between benefits, which allows determining a sequence in which the benefit best could be achieved. The method is practical in use and therefore adds value to more abstract methods currently in place. Interviews with experts provide a first validation. They show that practitioners perceive our method positively and would use it, once it is scientifically verified. To further validate the method, we are currently deploying the method in several case studies.

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