UNIVERSITY OF TWENTE. ★Heineken

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Selecting and evaluating a benefits management method for IT projects

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Master thesis Business Information Technology

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Abstract

Whenever large resources will be used in a project, most organizations develop a business case to justify the required investments. The investments are justified by estimated future benefits resulting from the project. However, only 30% of IT projects delivers the expected benefits.

Heineken Netherlands wants to manage its IT-related projects using the expected benefits as guidance, and review progress during the project and following its completion. The goals of the IT department are to increase the amount of realized benefits and to make the added value of the department more explicit. Benefits management is the approach to identify, plan and manage the delivery of benefits. Several benefits management methods have been developed in research and practice, but it is unknown which one is best suited for Heineken. Therefore, the goal of this study is to find the best benefits management approach for Heineken and to learn from its execution in practice.

The best benefits management method for Heineken is selected from seventeen methods found in a systematic literature search. Based on criteria from interviews at Heineken and criteria from a case study at Philips, the Cranfield method is selected. The method is subsequently evaluated in two pilot projects, resulting in the following findings:

- Full benefits management for *must do* projects (legal, fiscal or technical) is not feasible, but taking a moment to identify potential additional benefits is still very useful.
- A workshop facilitator should make sure that all participants have a good and shared understanding of the definitions used.
- In contrary to results from the Philips case study, the pilot participants want to assess benefits realization during project execution. They value the benefit 'thinking' process.
- The Benefit Dependency Network helps people who created it with reasoning about a project in other meetings. It provides a better overview than benefit templates.
- Individual benefits are useful to guide project execution, not to evaluate project success. Project success should be evaluated using the combination of all benefits in a project.

Following the evaluation of the Cranfield method, a deployment plan for benefits management in IT projects at Heineken is developed. The deployment plan contains one-time activities for adopting benefits management and recurring activities for using benefits management. The lessons learned from the evaluation and from feedback of Heineken stakeholders are included in the deployment plan.

The plan is approved by the IT department's management team and will be included in the department's strategy for the coming years. Due to the active involvement in the organization, this study has also paved the way for adopting benefits management. Only a few small steps have to be taken to include it in HNL's current practice.

Preface

Executing your graduation project at a beer brewery; it must be every student's dream!

Perhaps most students from Enschede would dream of an internship at Grolsch, the local pride. But I was very happy to get the opportunity to graduate at one of the world's largest brewers; Heineken. After experiencing the company and its brands at the Heineken Business Course, arrangements for my graduation internship at the IT department were quickly made. Looking back at the last six months, I can confidently say that it was a great learning experience and an incredibly inspiring time. Six months of hard work has resulted in this thesis and a benefits management approach for Heineken, ready for use.

During the graduation project I was supported by a lot of people, who I hereby want to thank for their great help. I wish to thank Christiaan and Silja, my university supervisors, for their enthusiasm, valuable ideas, sharp remarks and their invested time to read the growing amount of pages in this thesis. I would like to thank Matthieu, my company supervisor, for his close involvement in my assignment, the valuable brainstorming sessions, his candid feedback and the friendly collaboration. Many other people at Heineken were directly involved in the process of my research; as pleasant colleagues and sometimes also as workshop participants or interviewees. I wish to thank all of them for the good times and the nice cooperation. Apart from the people directly involved, I would like to thank Aniek and my friends and family for their support and encouragement.

Have fun reading,

Kelvin
Utrecht, February 2011

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List of abbreviations

ABR	Active Benefit Realization
AHP	Analytic Hierarchy Process
BDN	Benefits Dependency Network
BeReal	Benefits Realization and Management framework
BI	Business Intelligence
BPM	Business Process Modeling
BPS	Business Process Simulation
BRA	Benefit Realization Approach
BRM	Benefit Realization Management
BSC	Balanced Scorecard
CIO	Chief Information Officer
CSF	Critical Success Factor
EMCS	Excise Movement and Control System
ERP	Enterprise Resource Planning
ES	Enterprise System
EU	European Union
HNL	Heineken Netherlands
IS	Information System
IT	Information Technology
IT HNL	Information Technology department at Heineken Netherlands
KPI	Key Performance Indicator
LE	Latest Estimates
MCA	Multi-criteria analysis
MSP	Managing Successful Programmes
MT	Management Team
OGC	Office of Government Commerce
OP	Operational Plan
PAR	Participatory action research
PM	Project Management
PMO	Project Management Office
PNBF	Perceived Net Benefit Flow
PRINCE2	Projects IN Controlled Environments
RACI	Responsible, Accountable, Consulted, Informed
SMART	Specific, Measurable, Achievable, Relevant and Time bounded
SVP	Senior Vice President
Val IT	IT Value Delivery
VMMM	Value Management Maturity Model
WER	West European Region

1 Introduction

This chapter provides the reader with an insight into the research area of the thesis. The chapter starts with a discussion of the background, followed by a description of the context in which the study is performed and a brief assessment of benefits management within the Information Technology department at Heineken Netherlands. Finally, the problem statement is explained.

1.1 Background

Whenever large efforts or resources will be used in a new project, most organizations develop a business case to capture the reasoning for initiating the project and to justify the required investments. The investments are justified by estimated future benefits resulting from the project. Research demonstrates that only 30% of IT projects delivers the expected benefits (Nelson, 2007). Many organizations exaggerate benefits and put the business case aside during the project execution (Ward, Daniel, & Peppard, 2008).

Benefits management is an approach to identify, plan and manage the delivery of benefits. Clear identification and a detailed plan of how expected benefits will be realized are essential at the inception of a project. The plan is used to manage the project execution and to review progress and achievement both during the project and following its completion (Peppard, Ward, & Daniel, 2007).

Several approaches to benefits management 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 benefits management literature by Braun, Ahlemann and Riempp (2009) reveals that the pioneering work of Ward, Taylor and Bond (1996) has structured the discipline early on and has been adopted as a basis by other researchers.

1.2 Research setting

The study is performed within the Information Technology (IT) department at the Dutch operating company of beer brewer Heineken. Heineken is one of the world's largest brewers and is committed to growth and remaining independent. The brand that bears the founder's family name – Heineken – is available in almost every country on the globe and is the world's most valuable international premium beer brand. Heineken's aim is to be a leading brewer in each of the markets in which it operates and to have the world's most valuable brand portfolio. The principal international brand is Heineken, but the Group brews and sells more than 200 international premium, regional, local and specialty beers and ciders.

At Heineken Netherlands (HNL), production takes place at breweries in Zoeterwoude, Den Bosch and Wijlre. In 2010 the total production was around 15,5 million hectoliters, of which 2/3 is exported to 150 countries. Worldwide production was around 125 million hectoliters. The most important products in the Netherlands are Heineken, Amstel and Brand. Many innovative products and packagings are produced like Jillz, Wieckse Rosé and the draught keg ('tapvat'). Heineken employs 55.000 people worldwide, of which 3.500 work for HNL.

IT HNL delivers services for HNL projects with an IT component and for HNL operational IT services. The department's aim is to increasingly support the business results by the right application of IT. Around 100 employees work in customer teams, in IT service delivery, or in the Project Management Office (PMO). Four customer teams are responsible for the total IT service delivery to the business; each team is responsible for one business department (Supply, Commerce, Supporting

Services, Vrumona). Three service delivery teams – managed services, infrastructure services and SAP services – are responsible for internal service delivery to customer teams, including contract management. The PMO is responsible for the proper realization of all projects and for IT architecture, portfolio management, reporting and the business case development process.

1.2.1 Project management at IT HNL

At HNL, projects originate in the business departments. Every department manages its own project portfolio, focusing on budgeting of (total) project costs and capacity management of resources. IT HNL uses the project management methodology HeiProject, which is based on PRINCE2 (Projects IN Controlled Environments) (Office of Government Commerce, 2009), to perform its projects. A distinction is made between three types of projects; regular projects, lite projects and consultancy projects. The distinction between a regular project and a lite project is made with the help of three criteria; if a project is not cross-organizational, the duration is less than six months and the budget is less than a threshold euro value, it is generally considered a lite project. A project is considered a consultancy project when no changes to existing applications or systems and no development of new applications or systems are required, for example the development of a report or the preparation of a Request for Proposal. A set of templates and tools is available to support the HeiProject methodology.

The methodology for regular projects consists of six phases: (i) Idea, (ii) Intake, (iii) Proposal, (iv) Preparation, (v) Execution and (vi) Close Down. Lite projects consist of five phases; the Proposal phase is dropped. Through the phases, six ongoing processes are executed for (i) project management, (ii) business functionality, (iii) masterdata, (iv) technical infrastructure, (v) security and (vi) change management. The process for regular and lite projects is depicted in Figure 1.1.

For consultancy projects, four phases are defined: (i) Idea, (ii) Intake, (iii) Execution,

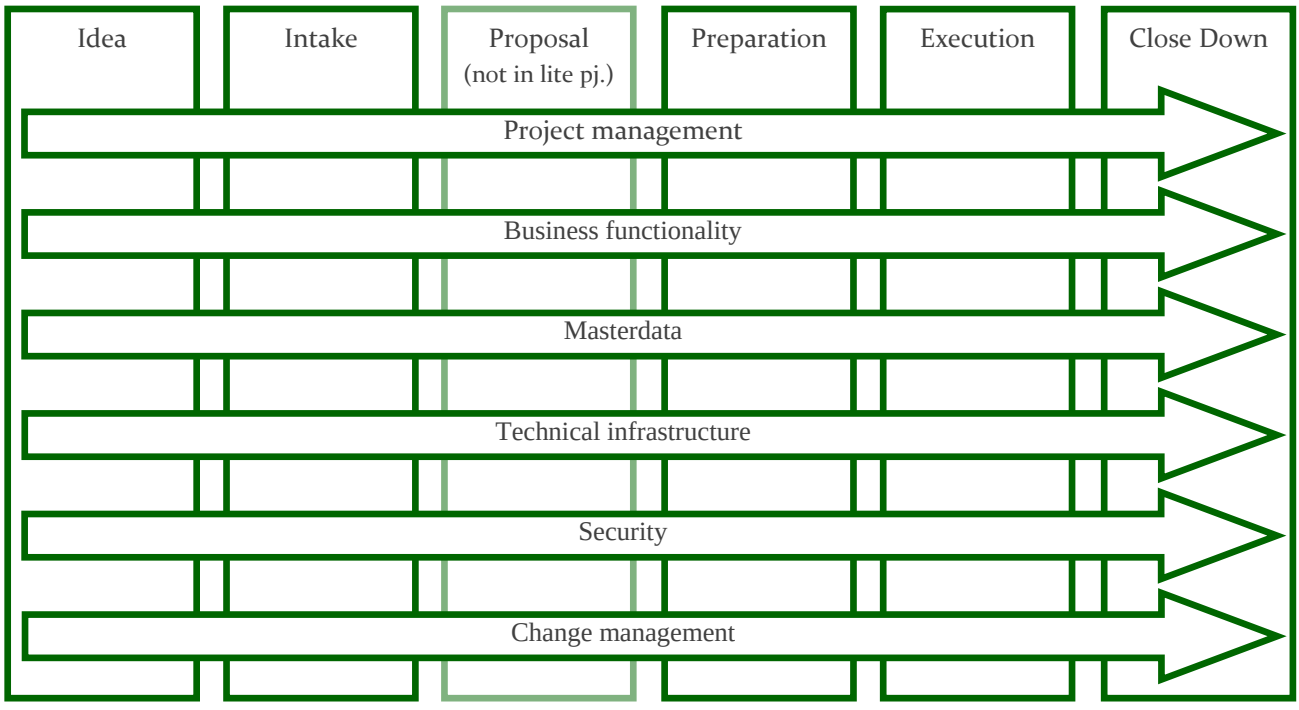

Figure 1.1 HeiProject for regular and lite projects

and (iv) Close Down. Through the four phases, only one ongoing process is executed; project management. The process for consultancy projects is depicted in Figure 1.2.

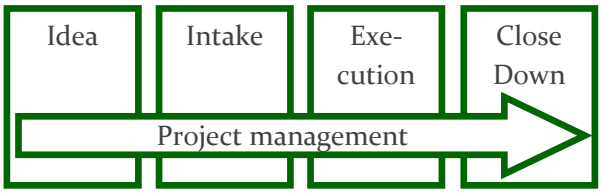

Figure 1.2 HeiProject for consultancy projects

The purpose of the Idea phase is to determine whether the project idea submitted by the business department is aligned with operational goals of HNL and the department. In the Intake phase the project impact and interdependencies are determined, and the idea is further detailed. The Proposal phase is used to further scope requirements in order to make a proposal for the business department. Project prerequisites are planned and managed in the Preparation phase, after which the solution is delivered in the Execution phase. Attention is paid to delivery of the solution according to plan, on time, on budget and with the agreed quality. In Close Down the project is completed and stabilized in the production environment.

In the Intake phase, a compulsory document to be created is the Assignment Letter. In this deliverable the customer from the business department approves a high level description of the assignment, containing the objective, deliverables, scope, assumptions, preconditions and budget indication. The Assignment Letter is developed in cooperation between the customer, a Business IT Manager (who is responsible for the IT service delivery for the customer's business department) and (prospective) key users. In the Proposal phase the document is further elaborated in the Proposal, containing among others a more detailed indication of budget.

1.2.2 Project portfolio management at IT HNL

The HeiProject methodology is applicable to individual projects. For the overall project portfolio, there are bi-weekly, monthly and quarterly reporting activities, and yearly planning activities.

1.2.2.1 Bi-weekly project portfolio report

A bi-weekly project portfolio report is shared with all IT Project Managers and Business IT Managers. It contains the status of every running project and the schedule of every running and planned project. The status shows information regarding project progress vs. schedule, costs on track, resource issues, interdependency issues, scope changes, and general issues. A schedule shows the planned project phase (see Figure 1.1) for each month.

The project portfolio is discussed in a monthly meeting with the Manager PMO and the Business IT Managers, in which the project portfolio report is an information source.

1.2.2.2 Monthly cost report

A monthly cost report is shared with all IT Project Managers and with the Controllers of the business departments. It mainly contains the summarized direct costs (invoices) and hours worked for every business department, which can be viewed separately for every project. These costs are charged by IT HNL to the business departments. The cost reports are also input for meetings of the Management Teams (MT) of the business departments.

1.2.2.3 Quarterly latest estimates report

A quarterly Latest Estimates (LE) report if sent to the West European Region (WER) IT department by IT HNL. It contains cost estimates by the Business IT Managers. It is obligatory for IT HNL to report the LE, but so far no one at the WER IT department has responded or undertaken any activities in response to the reports.

1.2.2.4 Yearly operational plan and project portfolio plan

Every year the Operational Plan (OP) and a project portfolio for the next year are developed at IT HNL. The OP contains the running costs that are charged to the business departments. The OP and portfolio are developed and reviewed in several iterations. The process starts around July 15th, when the Controller IT and the Business IT Managers in a few iterations develop a first draft. The Business IT Managers and the business departments discuss the departments' IT demands for next year's project portfolio. Around September 1st the first OP and project portfolio drafts are finished. Both documents are sent to the business departments, who review the IT costs, and are then sent to the WER IT department, who checks inconsistencies in functional topics. After these reviews the documents are finalized in December. In January of the next year a final budget and target are granted by the WER IT department.

1.2.3 Benefits management at IT HNL

For regular and lite projects a business case is usually developed, for consultancy projects this is not done. The business case is developed in cooperation between a business department and the IT department. Whether or not a business case is developed for regular projects is determined in the funding procedure by the person authorized to accept or reject the fund. The fund procedure for IT projects is shown in Table 1.1. Euro values have been replaced by a threshold character. Who is/are responsible for accepting or rejecting a fund depends on the business department where the fund originates and the size of the fund.

There are no company-wide policies for the business case development process. Business departments use different criteria to decide whether it is necessary to develop a business case and there are examples where senior management overrules these criteria.

The business case is not often used as a guide for project portfolio management nor is it changed during project execution. A developed business case contains a detailed indication of costs and deliverables, but no concrete indication of benefits that are intended to be realized with help of the deliverables.

During project execution little attention is paid to benefit realization. Most attention is on realization of products (new website, server) instead of the benefits which these products serve (cost reduction, efficiency improvement).

Table 1.1 High-level fund procedure for IT projects at HNL

An exception report has to be created when costs change, required number of working hours change, risks are signaled, functional changes are requested or a deliverable does not meet the agreements. Nobody at IT HNL is responsible for checking whether the business benefits are still realizable when changes occur during project execution. After project completion, it is up to the business department to decide whether or not to assess the realization of benefits. Most of the time this is not assessed and the benefit realization is taken for granted.

HNL wants to put more focus on benefits realization. For IT HNL this is particularly important, because they want to make their added value more explicit. Only projects for which a business case is developed are in scope of this research. Because of the absence of a business case, consultancy projects are out of scope.

1.3 Problem statement

HNL wants to manage its IT-related projects using the expected benefits as guidance, and review progress during the project and following its completion. Several benefits management methods and frameworks have been developed in research and practice (Eckartz, Daneva, Wieringa, & van Hillegersberg, 2009). HNL wants to use a benefits management method that matches with the organization's goals and culture, the organization's requirements and the existing project management approach as shown in Figure 1.1. They want to select the best suited method for HNL and then deploy it in the organization with a structured approach. Sufficient explanation and room to get acquainted with benefits management are necessary to secure good use of the method.

1.4 Structure of the thesis

In chapter 2 the research approach is provided including the research questions and the research methods used. Chapter 3 provides a theoretical background for the concepts that are used throughout the thesis and a literature study of benefits management methods. In chapter 4 the best method for Heineken is selected and described. Chapter 5 evaluates the method in two pilots. A deployment plan for benefits management at Heineken is presented in chapter 6. Finally, chapter 7 discusses the study results together with theoretical and practical implications.

Figure 1.3 shows the contents of the seven chapters of the thesis.

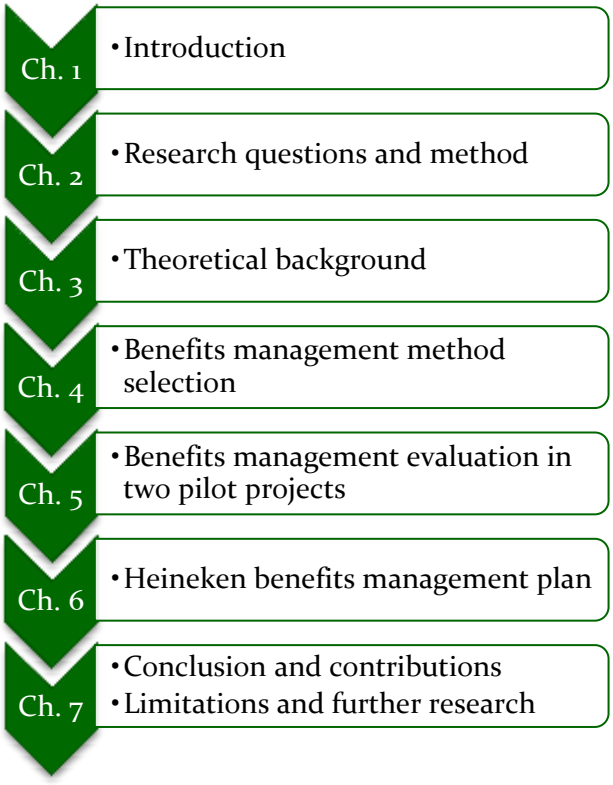

Figure 1.3 Structure of the thesis

2 Research approach

This chapter provides information on the research approach of this study. It introduces the research questions and their interconnections. The methods used to answers the research questions are explained and the deliverables for HNL are stated.

2.1 Research questions

The main research question is defined in line with the problem statement in section 1.3:

What is the best benefits management approach for IT HNL and what can be learned from its execution?

In order to answer the main research question the following sub questions are answered:

Q1. What benefits management methods are known in literature?
Q2. What are the requirements for a benefits management method at HNL?
    a. What are the requirements from stakeholders at HNL?
    b. What are good practices from a comparable company?
Q3. What is the best benefits management method for IT-projects at HNL?
Q4. How should benefits management be deployed at HNL?
    a. How should benefits management be deployed according to literature?
    b. What good practices are learned when executing the benefits management method in practice?

The best benefits management method for HNL (Q3) is selected from the methods identified in literature (Q1) with help of the identified requirements (Q2). A plan for deployment of the selected method at HNL is developed (Q4).

2.2 Research method

The focus of this research is on the four research questions identified in the previous section. The interconnection between the research questions is shown in the research model in Figure 2.1.

The following sections elaborate on the research methods used to answer the research questions. Table 2.1 on the next page provides an overview of the research methods used to answer each research question, including the location of the method description, the process description and the results.

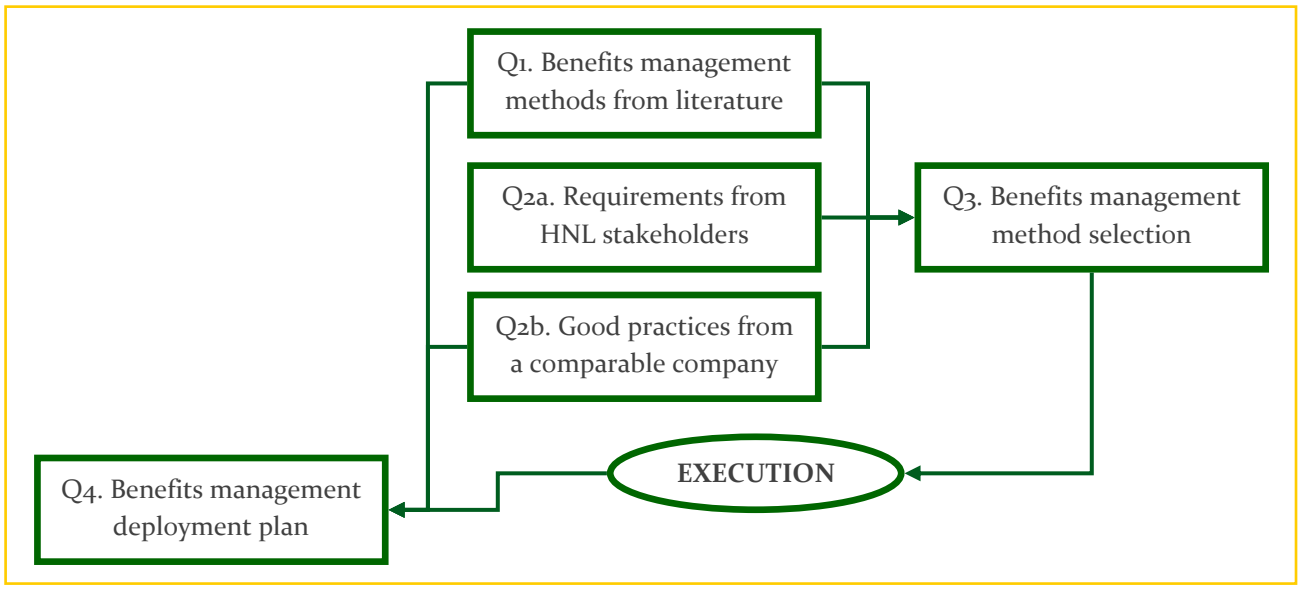

Figure 2.1 Research model

Table 2.1 Structure of the thesis

	Activity	Research method	Method descirption	Results descirption
Q1	**Literature study**	Systematic literature review	2.2.1	3.4
Q2	**Requirements collection**			
	HNL interviews	Unstructured interviews	2.2.2 + 4.1.1.1	4.1.1.4
	Philips case study	Exploratory case study	2.2.3 + 4.1.2.1	4.1.2.4
Q3	**Benefits management method selection**		2.2.4	
	Shortlist selection	Exclusion criteria	4.2.1	4.2.1.2
	Final selection	Analytic Hierarchy Process	4.2.2	4.2.2.2 + 4.3
Q4	**Benefits management method evaluation**		2.2.5	5.3
	Pilot projects selection	Inclusion criteria	5.1	5.1.1 + 5.1.2
	Pilot projects evaluation	Participatory action research	5.2	5.2.3
	Questionnaire	Likert scale questionnaire	5.2	5.2.4

2.2.1 *Literature study*

Q1 is answered through literature study. The literature study is planned, executed and evaluated based on the methodological guidelines by Webster and Watson (2002). The aim of the literature search is to find as many benefits management methods as possible. Both scientific and non-scientific search engines and electronic databases are consulted. The following inclusion criteria are applied to the discovered methods: (i) the method is classified as a framework, model, method or methodology either by its author or by an author referring to the method, and (ii) the method discusses benefits identification, benefits realization, benefits assessment or a combination of them. Both criteria must be met for the method to be included in this study.

2.2.2 *Unstructured interviews*

Q2a is answered by examining existing HNL documents, methods on project management, unstructured interviews with both project management experts and project managers at IT HNL, and with stakeholders from the finance department and the business departments. The goal of the interviews is to collect requirements for a benefits management method from stakeholders at HNL and to gain knowledge about the HNL organization.

Two types of interviews are executed; individual interviews with a stakeholder and group meetings where questions are answered by individual group members. In the individual interviews, a stakeholder answers questions about his/her requirements. In the group meetings, a presentation about the goals and approach of this study is given, followed by a discussion where questions are answered by individuals and these answers are discussed with the group. Ten people are individually interviewed and around thirty people are involved in two group meetings.

No specific questions are prepared for the interviews, but all interview questions have the goal to answer one main question:

- What are your requirements for a benefits management method with regard of your role/function and with regard of your knowledge about (IT) HNL?

2.2.3 *Exploratory case study*

Q2b is answered through exploratory case study research (Yin, 2003). This method is chosen for several reasons: (i) case studies are a preferred approach when 'how' or 'why' questions are to be answered, when the researcher has little control over events and when the focus is on a current phenomenon in a real-life context (Yin, 2003), (ii) it offers a great deal of flexibility in terms of research perspectives to be adopted and qualitative data collection methods, and (iii) case studies open up opportunities to get the subtle data needed to increase understanding of complex matters such as benefits management execution.

The case study is performed at Philips, a multinational company in healthcare, consumer lifestyle and lighting. Philips is comparable to Heineken by its turnover, amount of employees, amount of operating countries and strategy. Two and a half years ago Philips introduced benefits management and has since then used it in practice. Two Philips employees with experience in setting up benefits management and with benefits management in practice are interviewed. In the interviews, the interviewees are asked to describe the situation and practices at the Philips IT department. Then a set of prepared questions is used to ask for details and clarification.

2.2.4 *Exclusion criteria and multi-criteria analysis*

Q3 is answered by matching the methods found in literature (Q1) with requirements from (IT) HNL (Q2a) and practices at a comparable company (Q2b). The matching is done in two steps. First a shortlist is created by excluding the identified methods not matching a set of exclusion criteria. The remaining methods are then compared using Multi-criteria analysis (MCA). The Analytic Hierarchy Process (AHP) invented by Thomas Saaty (1980) is used to conduct the MCA. The AHP helps decision makers to find the decision that best suits their needs and their understanding of the problem, rather than prescribing a "correct" decision. It enables them to build a hierarchy with all relevant quantitative and qualitative criteria. By using the hierarchy one can judge how well the alternatives fit the goal.

The following steps are taken in the AHP:

1. Select a goal of the MCA
2. Construct a hierarchy of criteria
3. Assign a relative weight to each criterion by pair wise comparisons
4. Add the alternatives (the benefits management methods)
5. Complete the model with pair wise comparisons between alternatives in context of the criteria
6. Check the consistency of the judgments
7. Calculate the overall preference
8. Conduct a sensitivity analysis

2.2.5 *Participatory action research*

The selected benefits management method (Q3) is used in two projects; one project which is just started and one project which is almost finished. Using these two projects as pilots gives the opportunity to investigate both the start and the ending of the project lifecycle.

The pilots are executed with a Participatory action research (PAR) approach. PAR aims at involving an action component that causes positive change and it requires the collaborative involvement of the 'community of research interest' (Walter, 2009). The approach is intended to have some real world effects and is guided by a research topic that emerges from the community of interest. The role of the author of this study is to implement PAR in such a way that a mutually agreeable outcome for all participants is produced. The author's main practical role is to nurture participants to the point where they can take responsibility over the process themselves and carry on when the researcher leaves, but other practical roles to be adopted are those of planner, catalyzer, observer, reporter, teacher and facilitator. The research role is to evaluate the process, participants' feedback and participants' attitude and knowledge.

For each pilot project, two workshops are organized in which the participants can get acquainted with the benefits management method and one progress review meeting is used to review the benefits realization progress. The workshops are organized in a way where presentation slides give guidance in the process, explain process steps and give examples for clarification. The researcher gives explanation when asked, but mainly has the

role of facilitator and observer. He documents the participants' suggestions on a whiteboard, which noticeably gives him a different role than the participants.

To answer Q4b, the execution of the benefits management method at the two pilot projects is evaluated with both project stakeholders and stakeholders from IT HNL. Possible actions for improvement are identified. The participants' knowledge about and attitude towards benefits management is measured before and after they participate in the workshops (i.e., a "before" and "after" measure) using a questionnaire.

The evaluation of the pilots (Q4b) is combined with literature on the selected benefits management method (Q4a). Together they form the sources for a deployment plan (Q4) for benefits management at IT HNL.

2.3 Deliverables

The results delivered for IT HNL alongside the thesis are (i) documentation of the selection process for a benefits management method, (ii) a deployment plan for the selected benefits management method and (iii) a set of tools and templates for its practical application.

The documentation of the selection process for a benefits management method shows specifications and rankings for every investigated method, which explains the choices made. Intermediate deliverables for documenting the selection process are (i) a longlist of benefits management methods known in literature, (ii) a best practices document from the case study, and (iii) requirements documentation from stakeholders at IT HNL.

The deployment plan deals with among others the required management information, assigned responsibilities, required changes in the current project- and portfolio methods, connections with WER reports and do's and don'ts for the execution of the method.

The set of tools and templates for the practical application of benefits management consists of everything necessary for the people involved in benefits management to support their work. Examples are a Benefits Dependency Network template (Peppard, Ward, & Daniel, 2007) or a Benefits Realization Plan template (Ward & Daniel, 2006).

3 *Theoretical background*

This chapter provides a theoretical background on the major concepts that are relevant for the study. It introduces business cases, business benefits, and benefits management, and it discusses benefits management methods found in literature. Instead of giving an in-depth literature analysis of the subjects, it aims to familiarize the reader with the concepts.

3.1 Business case

Most organizations today develop a business case to capture reasoning for initiating a project and to justify the required investments. A business case is a tool that supports planning and decision making, generally developed to show the financial and other business consequences if an action or decision is taken (Schmidt, 2002). A business case can also ensure commitment from business managers to achieving the intended benefits, to identify how the combination of IT and business changes will deliver the identified benefits and to create a basis for reviewing whether the expected business benefits are actually realized (Ward, Daniel, & Peppard, 2008).

However, many organizations use a business case solely to obtain funding approval for the financial investments and not to actively manage the project (Ross & Beath, 2002). They often exaggerate benefits in their business case to obtain funding and put the business case aside during the actual project execution (Ward, Daniel, & Peppard, 2008).

3.2 Business benefits

A business benefit is defined by Ward and Daniel (2006, p. 384) as "an advantage on behalf of a particular stakeholder or group of stakeholders." Following this definition, a business benefit is only successfully realized when the stakeholder of the benefit values it positively.

Business benefits can be classified in several ways; they can be either tangible or intangible since not every benefit can be quantitatively measured (Murphy & Simon, 2001), there are IT benefits and organizational benefits, and they can be on an operational, managerial or strategic level. The most structured, complete and detailed framework for benefit classification has five high level dimensions and twenty-one detailed benefit dimensions (Shang & Seddon, 2002). Most of the classifications found in literature have been integrated in a three-dimensional conceptual framework for Enterprise Resource Planning (ERP) benefit classification (Eckartz, Daneva, Wieringa, & van Hillegersberg, 2009), depicted in Figure 3.1.

The term 'disbenefit' is used in many benefits management approaches and it is interpreted in a number of ways: a disadvantage, something objectionable, something that makes a situation unfavorable, or undesirable effects of an investment. Ward, Taylor and Bond (1996) highlight that potential disbenefits of an investment should always be

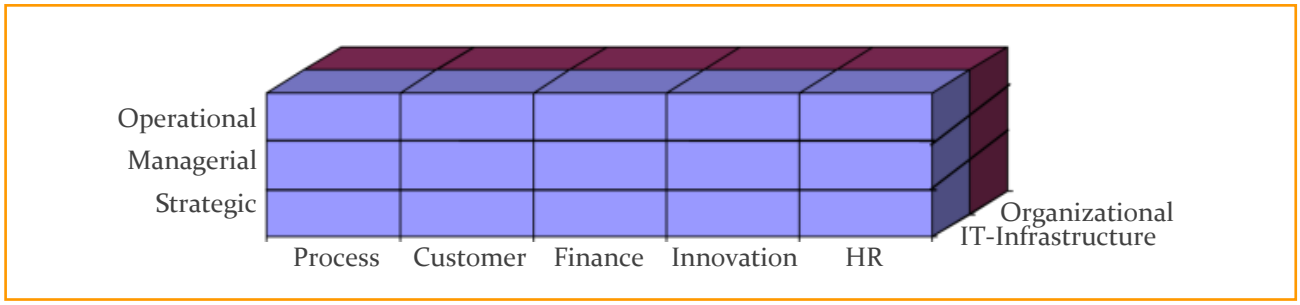

Figure 3.1 Three-dimensional ERP benefit classification framework (Eckartz, Daneva, Wieringa, & van Hillegersberg, 2009)

considered and they define those as the adverse impact on a business or an organization. Bannister (2008) makes the distinction between anticipated and unanticipated disbenefits. Anticipated disbenefits can be costs or risks and they should be managed; they should be part of a business case. Unanticipated benefits have to be managed in a reactive manner since they arise (i) as unexpected or unintended side-effects, (ii) from unforeseen use of technology, or (iii) as creation of new risks (e.g. new forms of fraud).

3.3 Benefits management

Benefits management is "the process of organizing and managing such that the potential benefits arising from the use of IS/IT are actually realized" (Ward & Daniel, 2006, p. 384). Other names often used in research and practice to refer to benefits management are Benefit Realization (Bradley, 2010) and Value Management (Swanton & Draper, 2010).

One of the factors that differentiate successful from less successful companies in their deployment of IT is the decision of the management to evaluate IT investments before and after they occur (Ward, Daniel, & Peppard, 2008). This shows the potential impact of benefits management for companies who do not (yet) evaluate their IT investments in such an extensive way. For benefits management, clear identification and a detailed plan of how expected benefits will be realized are essential at the start of a project. The plan is used to manage the project deployment and to review progress during the project execution and following its completion (Bradley, 2010).

Several approaches to benefits management 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 benefits management literature by Braun, Ahlemann and Riempp (2009) reveals that the pioneering work of Ward, Taylor and Bond (1996), who developed the Cranfield Benefits Management Model, has structured the discipline early on and has been adopted as a basis by other researchers. Benefits management has only recently been included in popular program management and project management methodologies. Managing Successful Programmes (MSP) (Office of Government Commerce, 2007) and PRINCE2 (Office of Government Commerce, 2009), both established by the UK government, have generic processes for benefits management in place since 2007 and 2009 respectively.

The framework developed by John Thorp (2003) is in the form of four basic questions – the four "ares". The four "ares" are summarized in Figure 3.2. The benefits management process is surrounded by processes of other activities like strategic planning, program and portfolio management, change management, systems development, project management, risk management, and investment appraisal.

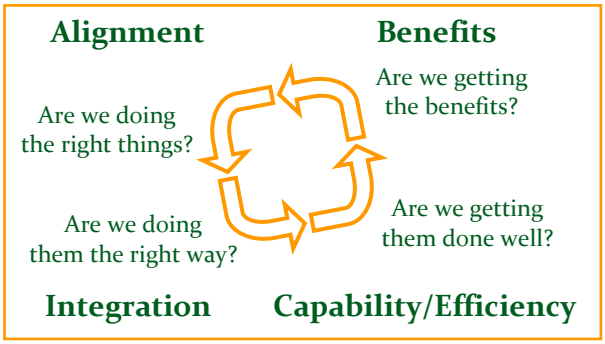

Figure 3.2 The four "ares" in benefits management (Thorp, 2003)

Several tools have been developed to support one or more phases of benefits management. Well-known tools are a Benefits Realization Plan (Ward & Daniel, 2006), Benefits Influence Matrix, Benefit Review Plan (Office of Government Commerce, 2009), Risk Benefit Matrix (Remenyi & Sherwood-Smith, 1998), and several checklists (Thorp, 2003), but the most used tool is the Benefits Dependency Network (BDN). With use of the BDN, shown

in Figure 3.3, business benefits can be explicitly linked with necessary business changes to deliver those benefits and the essential IT functionality both to drive and enable these changes (Peppard, Ward, & Daniel, 2007).

3.4 Benefits management methods

Several methods (frameworks, conceptual models, process models, etc.) are developed for benefits management or for one or several phases in benefits management. A literature search with the aim to find as many benefits management methods as possible is planned, executed and evaluated based on the methodological guidelines by Webster and Watson (2002).

The data sources and search engines consulted include both scientific and non-scientific databases. The following three scientific databases are consulted: (i) Scopus, (ii) Science Direct and (iii) Google Scholar. There is an overlap between the databases, but a multiple-database search strategy has the advantages of ensuring a coverage including additional sources (unique coverage) and taking advantage of differences in indexing across databases to increase the chances of retrieving relevant items that are in both databases (incremental retrieval) (McGowan & Sampson, 2005). Google Scholar has been criticized for including low-impact journals and conference proceedings, and even gray literature (Jacsó, 2006). However, since this literature search aims at finding as many methods as possible, whether developed in research or in practice, Google Scholar and even the non-scientific Google search engine are included as data sources.

The following search strings are used, avoiding language bias: (i) *benefits management*, (ii) *benefit management*, (iii) *benefits realization* (US), (iv) *benefit realization* (US), (v) *benefits realisation* (UK), (vi) *benefit realisation* (UK), (vii) *value management* and (viii) *value engineering*. Boolean OR is used to join the keywords in one search query. The compilation of the search strings is a learning process.

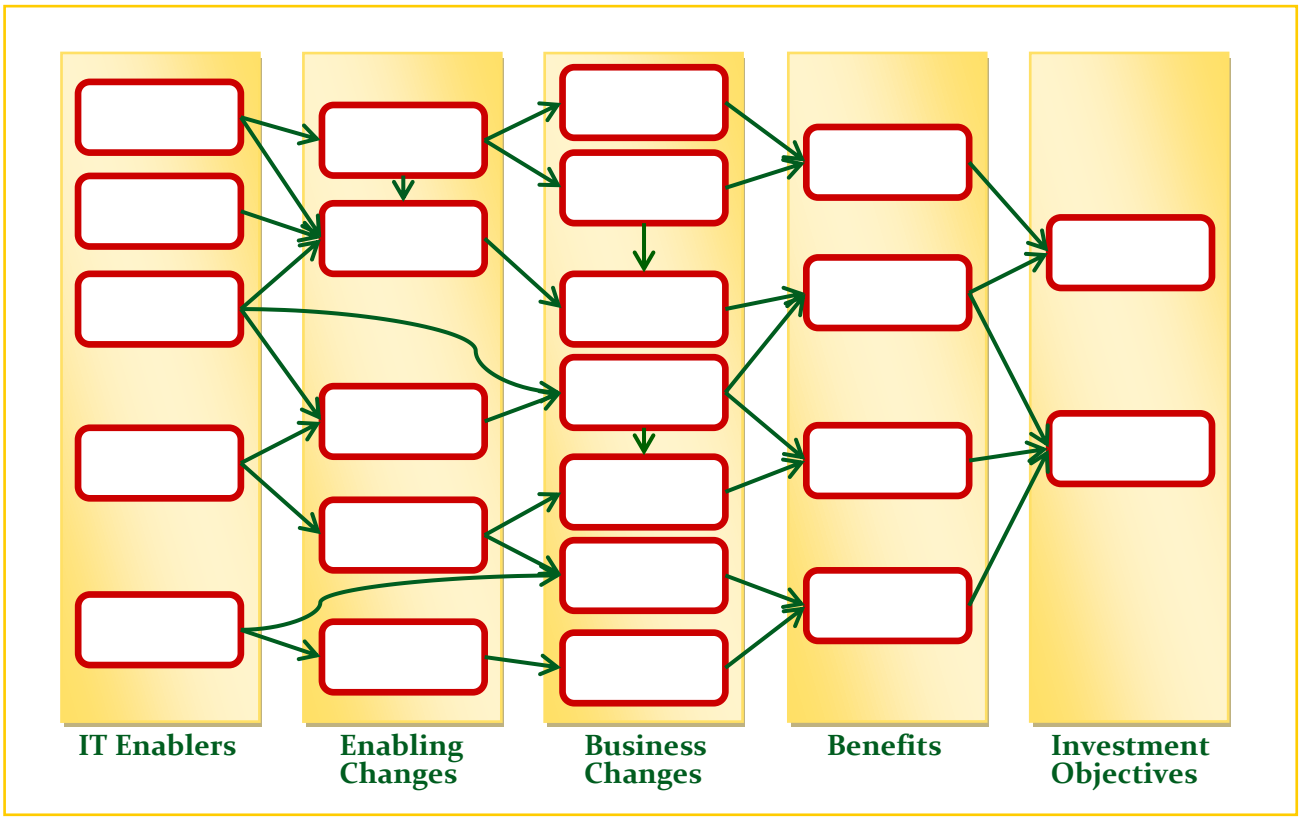

Figure 3.3 Benefits Dependency Network (Peppard, Ward, & Daniel, 2007)

Many of these words are found in a benefits management literature review by Brain, Ahlemann and Riempp (2009). After some experimentation, these keywords return relevant results.

After the identification of potential sources, all titles and abstracts are screened to extract the ones considered relevant for this study. Sources are considered relevant when (i) the method is classified as a framework, model, method or methodology either by its author or by an author referring to the method, and (ii) the method discusses benefits identification, benefits realization, benefits assessment or a combination of them.

In the following sections an overview of available methods is drawn; methods developed and validated in research, methods developed in research that are not (yet) validated, and methods developed in practice. An overview of the identified methods is shown in Table 3.1.

3.4.1 *Validated methods developed in research*

In this section seven methods for benefits management that are developed and validated in research are discussed.

3.4.1.1 *Cranfield Process Model of Benefits Management*

The Cranfield Process Model of Benefits Management (Peppard, Ward, & Daniel, 2007; Ward, Daniel, & Peppard, 2008; Ward, Taylor, & Bond, 1996; Ward & Daniel, 2006) has structured the discipline of benefits management research early on and has been adopted as a basis by other researchers. It consists of five phases and it uses the BDN as its core tool. Using the tool, benefits are explicitly linked to the IT and to the business changes that are required to deliver the benefits. Non-financial benefits are also recognized in the benefits management process. The BDN can be used both for problem-based and innovation-based projects.

An important feature of the model is the recognition of feedback in the process. It highlights that the benefits realization plan can be changed during its execution or during in-between evaluations. The need for benefits realization was introduced "not to make good forecasts but to make them come true" (Ward, Taylor, & Bond, 1996). To each benefit an owner is assigned, who personally gains the benefit or represents the interests of the group of stakeholders that gain the benefit. The owner's job is to ensure that a plan is in place to make sure the benefit is realized and to work closely with the project team. In the implementation of benefits management, two more roles are introduced: the project sponsor and the business project manager.

The model has been developed in the UK in both public and private sectors. It has been

Table 3.1 Benefits management methods identified in literature

Validated methods developed in research	Unvalidated methods developed in research	Methods developed in practice
3.4.1.1. Cranfield Process Model of Benefits Management	3.4.2.1. Model of Benefits Identification	3.4.3.1. Benefit Realization Approach
3.4.1.2. Benefit Identification Framework	3.4.2.2. Benefits realization capability model	3.4.3.2. PRINCE2 Benefit Review Plan
3.4.1.3. ERP benefits framework	3.4.2.3. Extended Benefit Framework	3.4.3.3. MSP Benefits Realization Management
3.4.1.4. Active Benefit Realization	3.4.2.4. Benefits Realization and Management framework	3.4.3.4. Benefit Realization Management
3.4.1.5. Conceptual model for evaluation of IT projects		3.4.3.5. Project Benefits Management
3.4.1.6. The IT Benefits Measurement Process		3.4.3.6. Val IT Framework 2.0
3.4.1.7. ISSUE Methodology		

validated in empirical research, for example in 2007 when a survey was performed in the Benelux and the UK on the state of practice in managing benefits from IT investments (Ward, De Hertogh, & Viaene, 2007). Findings from the survey showed that organizations which are more successful at delivering benefits from their IT investment projects are more likely to have a comprehensive approach to managing benefits.

3.4.1.2 Benefit Identification Framework

The Benefit Identification Framework (Shang & Seddon, 2002) is mostly used to summarize benefits in the years after an Enterprise System (ES) implementation, but can be used more broadly for planning, management, measuring and evaluation of benefits. It provides the most complete and referred to list of possible benefits from an ES implementation in current literature. The list of benefits is consolidated into five benefit dimensions; operational, managerial, strategic, IT infrastructure and organizational.

For each categorized benefit, a distinction is made between tangible and intangible benefits, measures are formulated and the link with a business change is made. Perceived net benefit flow (PNBF) graphs are used to depict how long it will take for a benefit to be realized and what path the realization will follow.

The framework is drawn upon experience from cases of ES vendors, where every organization achieved benefits in at least two dimensions. It has been validated in 233 case studies. Operational (73%) and infrastructure benefits (83%) were the most achieved benefits.

3.4.1.3 ERP benefits framework

The ERP benefits framework (Chand, Hachey, Hunton, Owhoso, & Vasudevan, 2005) makes use of the balanced scorecard (BSC) approach for evaluation of ERP system performance. It integrates Kaplan and Norton's (1996) BSC dimensions – process, customer, finance, innovation – with Zuboff's (1985) goals of information systems – automate, informate, transformate. Combining the dimensions gives twelve options for classifying goals of ERP systems, which helps to develop success measures by raising key questions necessary to achieve those goals and by assigning a metric to each question.

The ERP benefits framework can be used to identify benefits and measures for ERP implementations, but it must be noted that the framework is very specific on ERP systems and very broad on measures.

The framework has been validated in a case study, where the authors showed that ERP systems impact all the four dimensions of a BSC at the organization level. This demonstrates that the framework is capable of contributing to the business strategy of a company.

3.4.1.4 Active Benefit Realization

The Active Benefit Realization (ABR) is a process for managing information systems' development through a continuous evaluation approach, with the goals of increased business benefit delivery from IT and reduction of waste and time to market (Remenyi, White, & Sherwood-Smith, 1997; Remenyi & Sherwood-Smith, 1998). The iterative process of ABR is based on the evaluation of progress and continues until the project has been concluded.

The ABR process can be divided in three phases: (i) setting the course, where precise requirements are developed using a business picture, a financial picture and a project picture, (ii) formative evaluation, where the progress of a project is assessed by all stakeholders, and (iii) moving forward, where a feedback loop is provided throughout the entire life of the project. After the evaluation,

there are three possible outcomes: the three initial pictures are updated, the project is reformed if there are not sufficient resources, or the project is terminated if it became irrelevant to the organization's business requirements.

There are two notable process steps: the possibility of project termination is not found in many other methods, and the evidence collection as an explicit process step gives clear direction to progress measurement. Tools used in ABR are Business Picture, Financial Picture, Project Picture, Stakeholder-benefit matrix, Critical Success Factor (CSF)-benefit matrix and Risk-benefit matrix. ABR has a focus on finance with a comprehensive list of costs and monetized tangible benefits, required payback, return on investment, net present value and financial ratios. Stakeholders in the project are identified and their role and responsibilities are described. In the stakeholder-benefit matrix, the stakeholders are linked to benefits from which they profit.

The evidence to support the arguments of ABR is drawn both from literature and empirical work, but no validation of ABR was done. A search for other research validating ABR yielded no results.

3.4.1.5 *Conceptual model for evaluation of IT projects*

The conceptual model for evaluation of IT projects has been developed to determine whether or not to invest in an IT project and to evaluate the investments during project execution and after project completion (Gunasekaran, Love, Rahimic, & Miele, 2001). The model offers intangible and non-financial performance measures, and strategic information. Many other methods lack these aspects. The model helps to identify strategic, tactical and operational considerations and to identify intangibles, financial tangibles and non-financial tangibles for a project. The model is on a highly conceptual level and offers few guidelines for practical application.

Validation of the model was performed in a case study, where the application of the model in the real world was studied.

3.4.1.6 *The IT Benefits Measurement Process*

The IT Benefits Measurement Process is a framework for measuring the benefits of IT for a specific application to the construction sector and is supported by a computer based tool (Andresen, et al., 2000). The framework is a synthesis of current best practice in the assessment of IT costs and benefits and current industry practice. The identified process of benefits measurement contains a subsequent set of eight activities, which can be performed multiple times in a loop. The process has a broad scope and includes benefit identification, benefits realization and evaluation of the process. Someone is made responsible for the measurement and achievement of every identified benefit.

The framework has been validated in three UK construction organizations where it was tested and applied in action research case studies, and using three historical studies of construction organizations.

3.4.1.7 *ISSUE Methodology*

The ISSUE Methodology has been developed to quantify benefits from information systems (IS), an important practical problem in IS investment appraisal (Giaglis, Mylonopoulos, & Doukidis, 1999). It uses incremental benefits measurement, which starts with measuring hard benefits and gradually incorporating intangible and/or indirect benefits before studying strategic benefits. This approach promotes learning, feedback and modular development in a cost-effective process with clear exit criteria. Tools used for benefits measurement are business process modeling

and business process simulation, which can be potentially effective mechanisms to make benefits quantifiable and to experiment with alternative information system investments.

The ISSUE Methodology and business process simulation technique have been validated in a case study which demonstrates the feasibility of the approach in a practical setting.

3.4.2 *Unvalidated methods developed in research*

In this section four methods for benefits management developed in research that are not (yet) validated are described.

3.4.2.1 *Model of Benefits Identification*

The model of benefits identification is a process model with loosely defined, overlapping, iterative activities (Changchit, Joshi, & Lederer, 1998). The focus of the model is solely on the identification of benefits, not on other aspects of benefits management. The subsequent steps of the process are (i) problem identification, (ii) mini-study of current business processes, (iii) mini-design of proposed business processes and (iv) comparison of benefits of current and proposed processes. The process model has feedback loops that allow returning to the problem identification from every phase.

In addition to the development of the model, uncertainty in benefit identification and importance of persuasion are two important themes following from the study. Stakeholders were feeling uncertain about their ability to identify benefits and persuading users to feel committed to the project and to realizing the benefits was at least as important as identifying the benefits.

The model is based on interviews in 24 projects at 13 organizations. The study suggests that future researchers validate the model, but a search for research validating the model yielded no results.

3.4.2.2 *Benefits realization capability model*

The benefits realization capability model is a conceptual model derived from extensive research into best practices for benefits management (Ashurst & Doherty, 2003; Ashurst, Doherty, & Peppard, 2008). It consists of a continuous process through an evolving organizational context using four competences for benefits management: (i) benefits planning, (ii) benefits delivery, executing organizational change, (iii) benefits review, on-going measurement and management, and (iv) benefits exploitation, ensure the long-term delivery of benefits. Stakeholder identification and linking them to benefits are processes identified in the referenced literature of the benefits realization capability model, but that is not adapted in the model itself. The conceptual model has no extensive guidelines for its practical use and no practical tools are developed or suggested.

The benefits realization capability model has not yet been validated. The authors suggest future research to explore and validate the model "because of the novelty of this research, both in terms of its focus and approach" (Ashurst, Doherty, & Peppard, 2008).

3.4.2.3 *Extended Benefit Framework*

The Extended Benefit Framework helps with identification and understanding of expected and realized benefits (Schubert & William, 2009). In addition to current frameworks, this extended framework pays attention to contextual and temporal variations, socio-technical and business change, and levels of benefit realization. The focus of the study is on Enterprise Systems (ES) implementations. Next to the framework, a taxonomy was developed in an exploratory approach with five different categories in which expectations and benefits can be grouped; business design, company management, business function, supply chain and information technology.

The framework is empirically derived from iterative content analysis of data gathered from more than 60 case study organizations. It has not yet been applied and validated in practice.

3.4.2.4 Benefits Realization and Management framework

The Benefits Realization and Management framework (BeReal) has been developed with a focus on capital investments within healthcare infrastructures and can be used to drive, manage and measure the performance of a project (Yates, Sapountzis, Lou, & Kagioglou, 2009). BeReal differentiates benefits management into four phases: (i) benefits management strategy & benefits realization case, (ii) benefits profile & benefits mapping, (iii) benefits realization plan, and (iv) benefits evaluation and review. The benefits management process is aligned with the healthcare investment, development and decision making processes.

BeReal has been tested through case studies at different stages of the lifecycle of a healthcare program. It is difficult to validate the whole framework in one case study, as the whole cycle of such a healthcare program spans from 20 to 30 years. Not every phase of BeReal has been tested, nor has the use of BeReal in all subsequent phases.

3.4.3 Methods developed in practice

In this section six methods for benefits management that are developed in practice are described.

3.4.3.1 Benefit Realization Approach

The Benefit Realization Approach (BRA) is a proprietary benefits realization methodology developed by Thorp (2003) for a multinational business consulting firm, DMR Consulting, that was later acquired by Fujitsu (Fujitsu Consulting, 2010). It is mostly developed in practice and it provides a basis for using IT to deliver business results more consistently and predictably. BRA is currently packaged into ResultsStation, one of the five process domains of Macroscope business transformation methodology by Fujitsu Consulting (2010). Thorp has also lead the development of the Val IT Framework (IT Governance Institute, 2008), which is discussed in section 3.4.3.6.

There are three fundamentals and three conditions in BRA that organizations must meet in order to successfully deploy it. The fundamentals are (i) a shift from stand-alone IT project management to business program management, (ii) a shift from competition among projects to portfolio management, and (iii) a shift from traditional project management cycles to full cycle governance. The necessary conditions are (i) activist accountability to identify business owners of investment programs, (ii) relevant measurement in the benefits realization process, and (iii) proactive management of change to give people ownership stakes in programs.

Two techniques used to support benefits realization are designing programs and assessing the relative value of programs. A tool used for designing programs is the Results Chain, which models linkages among four core elements of the benefits realization process: outcomes, initiatives, contributions and assumptions. Many other tools and techniques have been developed for use in the benefits management process of BRA. There is a lot of attention for roles and responsibilities in the method; activist accountability is even mentioned as a key condition for effective benefits management. The key roles identified are business sponsor, program manager and project manager, each with their own responsibilities. These responsibilities are extensively described in an accountability matrix.

3.4.3.2 *PRINCE2 Benefit Review Plan*

The Office of Government Commerce (OGC) is a government organization in the United Kingdom, working with public sector organizations to help them deliver improved success from programs and projects. PRINCE2 is as process-based approach for project management, established in 1996 by the OGC. The PRINCE2 Benefit Review Plan is a plan for evaluation of benefits, used to define how and when a measurement of the achievement of a project's benefits can be made (Office of Government Commerce, 2009). It is also used for post-project measurement activities. The responsibility for benefits reviews transfers from the executive management to the corporate or program management as the project closes, because the post-project reviews need to be funded and resourced.

3.4.3.3 *MSP Benefits Realization Management*

OGC's publication MSP represents the UK government's view on the program management principles and techniques (Office of Government Commerce, 2007). OGC identifies benefits management as fundamental to the realization of benefits from new capabilities delivered by projects within the program. Emphasis is on identification, quantification and measurement, assignment of owners, realization and tracking of benefits.

MSP Benefits Realization Management has been heavily influenced by the Cranfield Process Model of Benefits Management (Ward & Daniel, 2006) and Benefit Realization Management (Bradley, 2010). The model indicates dependencies between a typical benefits management process and the steps for managing a major delivery program at a high level. It maps the main benefits management steps into the standard delivery stages described in MSP. Roles and responsibilities in benefits management are described for many roles, e.g. program manager, benefits realization manager, business change manager and program office. Apart from this, MSP prescribes the use of a benefits distribution matrix to show the positive or negative impact of each benefit on the identified stakeholders.

3.4.3.4 *Benefit Realization Management*

Benefit Realization Management (BRM) is a practical model using measures to track performance throughout and beyond a project's life, enabling elimination of wasted investment and more and earlier realization of benefits (Bradley, 2010). BRM fits closely with MSP and PRINCE2. It has even had an influence on Benefits Realization Management in MSP and they share many tools. Despite its influence on other methods, BRM has – in Bradley's own words – "limited practical track record on which to rely" (Bradley, 2010). Roles and responsibilities for benefits management are identified in the BRM method. A few examples are benefit facilitator, program manager, enabling project manager, steering group and sponsor. The purpose, organizational position, authority and accountability, skills and experience, and time commitment for each role is described. Relations between benefits management functions and organizational roles are drawn.

3.4.3.5 *Project Benefits Management*

Project Benefits Management is a set of tools and methodologies for incorporating benefits management in project management, to be used in the first and final value-added stage in a project (Melton, Iles-Smith, & Yates, 2008). The benefits management process is divided in three phases: (i) benefits definition/direction, (ii) benefits specification, and (iii) benefits realization. The method has been primarily developed from the perspective of engineering projects within the process industries. Many tools and techniques for benefits management are incorporated in the method, but there is not much guidance available on assignment of roles and responsibilities. Roles are made

responsible for some sub processes, but there is no directed approach.

3.4.3.6 Val IT Framework 2.0

Val IT (IT Value Delivery) Framework 2.0 is a framework for the governance of IT-enabled business investments (IT Governance Institute, 2008). It extends COBIT, a well-known framework for IT governance. Val IT focuses on the investment decision and the realization of benefits, while COBIT focuses on the execution. Val IT defines three main activities: value governance, portfolio management and investment management. For each activity a set of guidelines is available with a high-level description of the processes within each activity. For every guideline, roles and responsibilities are defined in RACI charts (Kofman, Yaeli, Klinger, & Tarr, 2009). The RACI chart decomposes the process into a set of key activities, indicating for each of these activities who should be responsible, accountable, consulted and informed. No detailed guidelines, processes or tools are given for benefits management; Val IT is a high-level framework.

The development of Val IT was led by John Thorp, who also developed the Benefit Realization Approach (Thorp, 2003) earlier in his career. The Benefit Realization approach provided the basis for the Val IT framework and is discussed in section 3.4.3.1.

3.4.4 Comparison of methods

Seventeen methods for benefits management are identified. There are significant differences between the methods. For example, some methods do not give guidelines for realization of benefits, while others do not discuss benefit identification. An overview has been constructed comparing the methods and showing their differences with help of six basic characteristics used in a framework developed by Avison and Fitzgerald (2006) to compare methodologies: philosophy (paradigm, objectives, domain and target), model, techniques and tools, scope, outputs, and practice (background, user base, players and product). The comparison makes use of the characteristics that are found to be of importance based on preliminary results of HNL stakeholder interviews. The comparison is shown in Table 3.2.

The *philosophy* consists of the principle(s) that underlie a methodology. The *paradigm* of the philosophy can be either *science* or *systems*, where the science paradigm explains the world through formalization and repeatability ("hard" thinking) and the systems paradigm is concerned with the whole picture and interrelationships between parts of the whole ("soft" thinking). For example, a benefits management method with a science paradigm recommends classifying every benefit in a set of pre-defined categories, while a method with a systems paradigm relates its process model with other disciplines like change management and systems development.

The *target* of the philosophy explains for what types of projects and environments the method is applicable. Most benefits management methods explicitly describe their target, e.g. 'any IT project' or 'an IT project in the health industry'.

The *model* describes what constructs are used to model the real world (e.g. verbal, mathematical or schematic). Many benefits management methods offer some kind of schematic process model or verbal guidelines on how to use the method.

Techniques and tools are provided to support the user of a method. Examples are tools for Project Management (PM), benefit classification techniques and conceptual models. The list of tools and techniques for every method is not complete; only those with a leading role in the method are listed.

Table 3.2 Comparison of benefits management methods

Method (main reference)	Paradigm[1]	Target	Model	Techniques and Tools	Scope: Identify[2]	Scope: Realize[2]	Scope: Assess[2]	Scope: Quantify[2]	Outputs	Background[3]	Product(s)	Roles[2]
1.1 (Ward, Taylor, & Bond, 1996)	B	IT	Process model, verbal guidelines	Conceptual model, tools for PM	√	√	√	√	Documentation for PM, reports	A	Book, academic papers, software tool	√
1.2 (Shang & Seddon, 2002)	H	ES	Verbal classification	Classification techniques, graphs	√	√	√	√	Classified benefits, benefits graphs	A	Academic papers	×
1.3 (Chand, Hachey, Hunton, Owhoso, & Vasudevan, 2005)	H	ERP	Verbal classification	Classification techniques, BSC	√	×	×	√	Classified benefits, balanced scorecard	A	Academic paper	×
1.4 (Remenyi & Sherwood-Smith, 1998)	B	IS	Process model, financial model, verbal guidelines	Organizational techniques, tools for PM, financial tools	√	√	√	√	Documentation for PM, quantified benefits	A	Book, academic papers	~
1.5 (Gunasekaran, Love, Rahimic, & Miele, 2001)	S	IT	Analytical model	-	√	×	~	√	Verbal benefits documentation	A	Academic papers	×
1.6 (Andresen, et al., 2000)	H	IT in con-struction	Process model, verbal guidelines	Measurement technique	√	√	√	√	Quantified benefits, evaluated benefits	A	Academic paper	~
1.7 (Giaglis, Mylonopoulos, & Doukidis, 1999)	S	IS	Process model, verbal guidelines	BPM (Modeling), BPS (Simulation)	√	×	×	√	As-is model, to-be model	A	Academic paper	×
2.1 (Changchit, Joshi, & Lederer, 1998)	S	IS	Descriptive process model	-	√	×	×	×	-	A	Academic paper	×
2.2 (Ashurst, Doherty, & Peppard, 2008)	S	IT	Process model, verbal guidelines from literature	Many referenced from literature	√	√	√	√	-	A	Academic papers	×
2.3 (Schubert & William, 2009)	S	ES	Verbal classification	Taxonomy of benefits	√	×	×	×	Classified benefits	A	Academic paper	×
2.4 (Yates, Sapountzis, Lou, & Kagioglou, 2009)	B	IT in health	Process model	PM software tool	√	√	√	×	-	A	Software tool, academic paper, consultative guide	×
3.1 (Thorp, 2003)	S	IT	Verbal (process) guidelines	Conceptual models, tools for PM	√	√	~	~	Documentation for PM	C	Book, training	√
3.2 (Office of Government Commerce, 2009)	S	Any project	Verbal process guidelines	Tools for PM	√	~	√	~	Documentation for PM, reports	C	Book, training, certification	√
3.3 (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	√
3.4 (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, many reports	C	Book, training, software tool	√
3.5 (Melton, Iles-Smith, & Yates, 2008)	B	IT	Process model, verbal guidelines	Conceptual model, many tools for PM	√	√	√	√	Documentation for PM, reports	C	Book	~
3.6 (IT Governance Institute, 2008)	H	IT	Process model, verbal guidelines	Tools for PM	√	√	√	×	Documentation for PM	C	Book	√

What phases of the benefits management life cycle are covered is defined in the *scope* of the model. The phases considered in this comparison are benefit identification, realization and assessment (Eckartz, Daneva, Wieringa, & van Hillegersberg, 2009). Because of the importance of quantification of benefits, as expressed in stakeholder interviews, these two processes are also examined in the scope of the model. The comparison of benefits management methods shows whether a phase is discussed (√), briefly discussed (~), or not discussed at all (×). To give an example, the quantification phase is considered briefly discussed when it is mentioned as a process step, and it is considered fully discussed when techniques for quantification are described and examples are given.

The *outputs* are the deliverables produced by the method (e.g. requirements specification, working implementation). For every benefits management method a list of the main outputs is given, not the complete list. Examples are

[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

plans for each phase and reports for management.

Practice describes the background of the method (commercial, academic) and the product(s) included (software tools, written documentation, training). In the stakeholder interviews the assignment of roles and responsibilities was expressed to be important for practice, and therefore it is also examined here. Whether a benefits management method has been developed in practice (commercial) or in research (academic) is explicitly mentioned in the method description. The product(s) included are also discussed in the method description or they are described on the website of their owner/developer. Whether roles and responsibilities are discussed is shown with the same icons that are used to show whether phases in the scope are discussed. Roles and responsibilities are considered briefly discussed when the roles involved in every phase are described, and they are considered fully discussed when collaboration between the identified roles is discussed or their responsibilities are defined.

4 Benefits management method selection

In this chapter the best benefits management method for HNL is selected. Criteria for the selection process are identified in interviews with stakeholders at HNL and in a case study at Philips. The best method is then selected in two steps. First a shortlist is created with help of exclusion criteria, excluding 13 of the 17 identified methods. The remaining four methods are then evaluated in an MCA, resulting in the best method for HNL: the Cranfield Process Model of Benefits Management. The selection process is depicted in Figure 4.1 and extensively described in the following sections.

4.1 Definition of criteria

Criteria for the selection of a benefits management method are collected from requirements of stakeholders at HNL and IT HNL, and practices of a case study at Philips. In this section the collection process and the derived criteria are discussed.

4.1.1 HNL interviews

Criteria of stakeholders at HNL are collected in unstructured interviews with both project management experts and project managers at IT HNL, and with stakeholders from the finance department and the business departments. Thirty-eight interviewees are involved in the interviews, eight of them are also asked to verify the collected criteria and their relative importance.

4.1.1.1 Interview methodology

Two types of interviews are executed; individual interviews with the stakeholder and group meetings where questions are answered by individual group members. In the individual

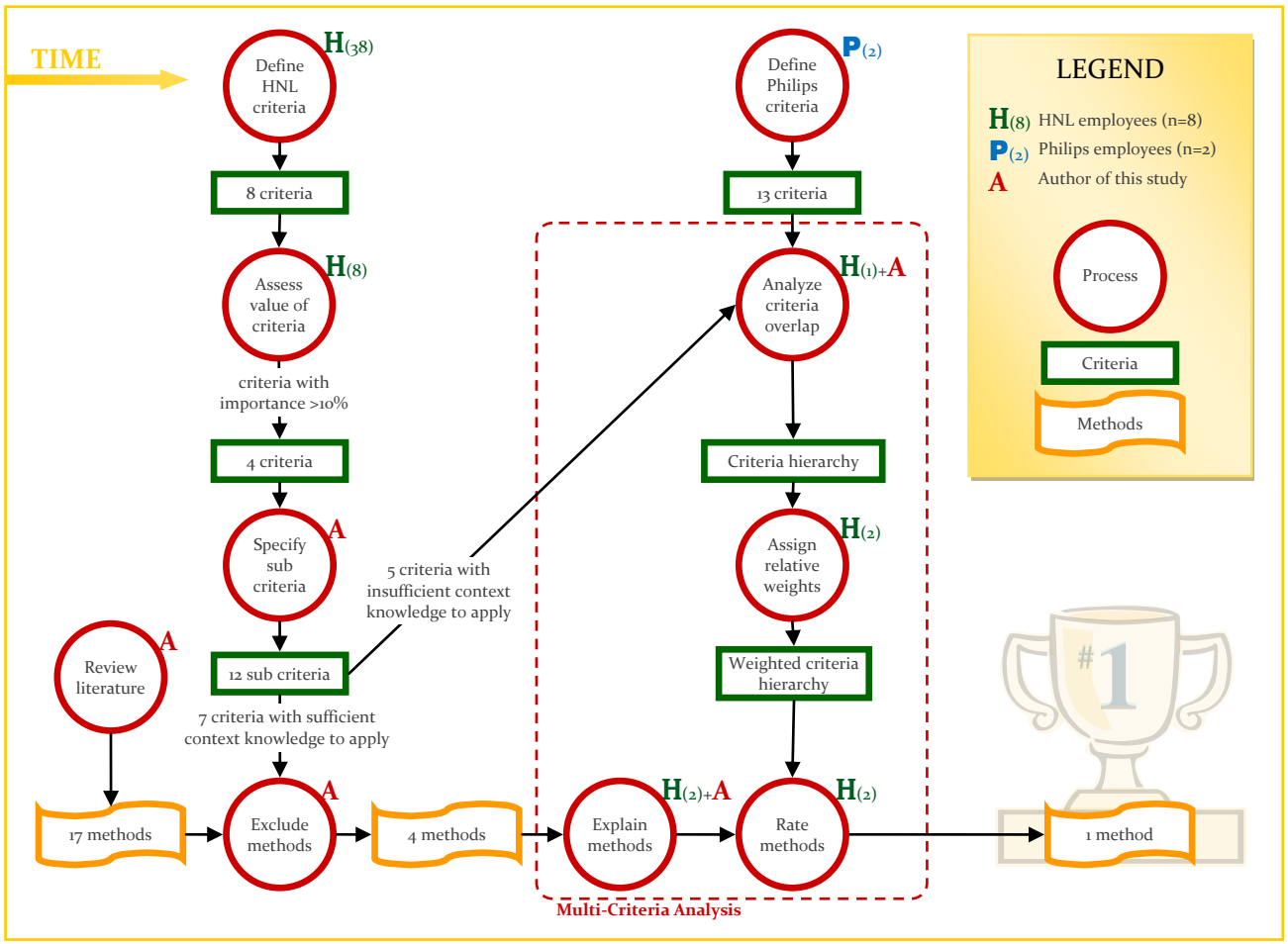

Figure 4.1 Benefits management method selection process

interviews, a stakeholder answers questions about his/her requirements. In the group meetings, a presentation about the goals of this study is given, followed by a discussion where questions are answered by individuals and these answers are discussed with the group. In both cases, interviewees do not have to prepare anything. Both the interviews and the group meetings last for half an hour to an hour. All interviews and meetings are face to face and notes are taken at all interviews.

The interviews are analyzed mainly on the basis of the notes. To verify the collected criteria and to check their relative importance, eight random interviewees are afterwards asked to distribute 100 points over the collected criteria, giving the most points to the most important criteria. Criteria with a relative importance less than 10% are considered not important and are excluded from the method selection. The relatively important criteria are analyzed by the author of this study and sub criteria are specified from them. The original criteria may contain several components, which makes a step-wise exclusion process ambiguous. If a method is excluded based on a criterion with multiple components, no one knows which one of these components is the actual reason for exclusion.

The individual interviews took place in the period from the 1st of September until the 8th of October 2010. The group meetings took place on the 21st and the 22nd of September 2010. The interviewees for the individual interviews are selected because of their possible future involvement in benefits management due to their organizational role, their diversity in roles and their diversity in functional departments (also in IT versus business). One group meeting is selected because of the participants' possible future operational involvement in benefits management and one meeting is selected because of the participants' possible future managerial involvement.

4.1.1.2 *Interview approach*

The individual interviews have the following approach:

1. Get to know each other
2. Explain goal of research and interview
3. Ask questions about benefits management method requirements
4. Wrap up: explain way forward

The group meetings have the following approach:

1. Get participants to know the researcher
2. Explain goal of research and meeting
3. Discussion
   a. Ask questions
   b. Ask for contradicting opinions about earlier answers
4. Wrap up: explain way forward

No specific questions are prepared for the interviews, but all interview questions have the goal to answer one main question:

- What are your requirements for a benefits management method with regard of your role/function and with regard of your knowledge about (IT) HNL?

4.1.1.3 *Details of interviewees*

In total ten people are individually interviewed:

- Business IT Manager
- 2 Project Managers
- Business Controller IT
- Controller Production (representative for Finance MT)
- Portfolio & Project Manager
- IT Manager
- Manager Projects & Consultancy
- Senior Auditor
- Manager Planning & Control

A presentation is shown followed by a group interview/discussion in two meetings:

- IT Demand Meeting (eight participants)
  - IT Manager
  - 3 Business IT Managers
  - 3 Supply Managers
  - IT Architect

- IT Projects & Consultancy Team Meeting (around twenty-five participants)
    - Manager Projects & Consultancy
    - Around 15 Project Managers
    - Around 10 Consultants

4.1.1.4 *Findings*

In the analysis of the interviews, the requirements for the benefits management method converge into a few main criteria. These criteria are verified and their relative importance is assessed. The combined results are shown in Figure 4.2, where the criteria are shown with their relative importance.

The first four criteria are of relative large importance (> 10%) for the interviewees. However, criteria five to seven are relatively unimportant (< 10%) and criterion eight is assessed not to be important at all (0%). Because of these scores, only the first four criteria are used as input for the method selection in this study. The four criteria are analyzed by the author of this study and the following twelve sub criteria are specified (H1-H12).

The method must contribute to the correct quantification of benefits, also with complex business cases

H1. Support correct quantification of benefits, also with complex business cases

The method must not be too abstract/high-level, but practical in application and with practical tools/templates available

H2. Conceptual model available (to support practical application; stakeholders in interviews explained their need for a conceptual model to guide their benefits thinking and reflection)
H3. Practical in application (in addition to a conceptual tool)
H4. Practical tools available
H5. Practical templates available

Responsibilities for identification, measurement and realization of benefits must be clearly defined/divided

H6. Identification process in place
H7. Measurement process in place
H8. Realization process in place
H9. Responsibilities for these processes clearly defined/divided

Integration of the method with existing business processes and KPIs

H10. Deliver a plan or report as output (necessity to support integration)
H11. Attuned to existing business processes
H12. Attuned to existing KPIs

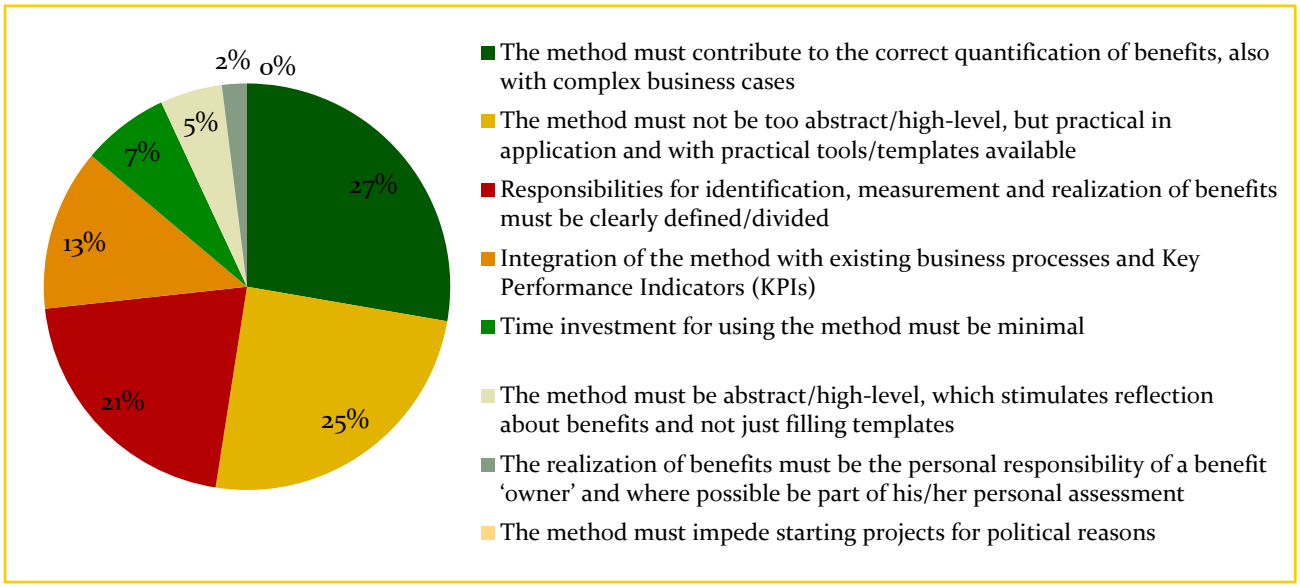

Figure 4.2 Requirements of HNL stakeholders with their relative importance

The knowledge of the author of this study about the organizational context at HNL is insufficient to apply the sub criteria *printed in italics* (H3, H4, H5, H11 and H12) in the method selection without consulting stakeholders at HNL who do have this knowledge. These sub criteria are applied in the MCA to select the final benefits management method, where HNL stakeholders rate the methods with these criteria. The other sub criteria can be applied by the author, and are used in the selection of a shortlist.

Most of the identified criteria match with the characteristics in the framework for comparison of methodologies (Avison & Fitzgerald, 2006), but there are a few exceptions. The academic or commercial *background* is not important according to HNL stakeholders, as long as the method is validated in practice. The *product(s)* included are also unimportant, since there is no budget for training or software tools. Whether academic papers or books are used to describe the method makes no difference, because only the contents of the method – as described with the other characteristics – matter. The *paradigm* characteristic is interpreted in a different way by each stakeholder, which makes their views of the paradigm incomparable. A comparison with this characteristic is not possible because the definitions of the stakeholders do not match. All the other characteristics are matched with the identified criteria and are used in the selection process.

4.1.2 Philips case study

A case study is performed at Royal Philips Electronics, shortly Philips, a multinational company in healthcare, consumer lifestyle and lighting. Philips is in many ways comparable to Heineken. Philips has a turnover, amount of employees and amount of operating countries in the same order of magnitude as Heineken. In 2009 Philips had a turnover of € 23 billion, Heineken had a turnover of € 15 billion. Philips employs around 118.000 people, Heineken around 55.000. Philips operates in more than 60 countries, Heineken in more than 70. Both companies have innovation, sustainability and marketing in the center of their strategy. Philips introduced benefits management two and a half years ago and has since then used it in practice. Two Philips employees with experience in setting up benefits management and with benefits management in practice are interviewed.

4.1.2.1 Interview methodology

The goal of the interviews is to collect requirements for a benefits management method from Philips employees, to gain knowledge about Philips and the way they introduced and use benefits management, and to collect lessons learned in practice at Philips. In two individual interviews, benefits management stakeholders at Philips are asked to describe the situation, project management practices and project portfolio management practices at the Philips IT department. Then they are asked to describe the benefits management practices and the road from starting with benefits management to the current situation. During their explanation prepared questions are used to ask for details and clarification when necessary. After their explanation, any questions they did not yet elaborate about are asked.

Interviewees do not have to prepare anything. The interviews last for an hour. All interviews are face to face and notes are taken at all interviews. After the interviews, the interviewees are asked to send detailed documentation about Philips' benefits management method and practices by email. The interviews are analyzed mainly on the basis of the notes and documentation.

The interviews take place on the 7th and the 21st of October 2010. The first interviewee is

selected because of his managerial involvement in setting up benefits management at Philips and because of previous contacts between him and the HNL Manager Projects & Consultancy. The second interviewee is selected after a recommendation of the first interviewee and because of his managerial and operational involvement in setting up benefits management at Philips.

4.1.2.2 Interview approach

The interviews have the following approach:

1. Get to know each other
2. Explain goal of research and interview
3. Ask for an introduction into benefits management at Philips
4. Ask questions
5. Wrap up: explain way forward

An extensive list of questions is prepared for the interviews, see Appendix A. The questions in that list all build on the following general questions:

- What was the motivation to start benefits management?
- What model/method does Philips use?
- How is benefits management deployed in practice? What is the role of IT?
- What results are realized?
- What lessons were learned / tips and tricks for Heineken?

Special attention is given to the following questions:

- What are critical success factors for a successful deployment of benefits management?
- How can you ensure that benefits management really delivers increased benefits instead of only demanding a lot of extra administrative paperwork?
- How are roles of IT and business defined?
- How does/did benefits management attune to existing project management methodology and existing governance in organization?
- Permission to use information of Philips in this research? Other contact persons?

4.1.2.3 Details of interviewees

Two people are interviewed:

- Consumer Lifestyle Senior Vice President (SVP) Chief Information Officer (CIO)
- Controller IT Consumer Lifestyle and Value Management Officer

The SVP CIO is responsible for the introduction of benefits management at Philips. The Controller IT was appointed as member of the newly created Value Management Office by the SVP CIO roughly a year ago.

4.1.2.4 Findings

When Philips introduced benefits management (which they mostly refer to as *value management*), they started attracting business process managers and business process experts in the IT department to lead the change. After one year, a Value Management Office was installed and a method was developed and documented in the Value Book. The Value Book is used to explain purpose, procedures, techniques and templates. It is based on the Value Management framework developed by SAP and practical experience and templates developed by IBM. The reason for the IT department to introduce benefits management is to use benefits as input for project portfolio management. At that time IT projects were scattered over different business units and the budgets were reduced by half their size. Project portfolio management was a necessity to choose which projects to abandon, and the potential benefits of projects could be the fundament for that decision.

The first step in project portfolio management was to organize IT around customers and markets. To support the centralization, all IT projects were tracked in one system, Clarity, which led to increased transparency. Clarity is used as main source of data and reports about benefits management are derived from it.

Heavy anchoring at the board ensured overcoming resistance in the business departments. After a while resistance was reduced and the approach became more positive. Benefits management is now used in all IT projects and it serves as a foundation for project portfolio management.

The findings of the interviews are described in Appendix A. From these findings, the following criteria for the selection of a benefits management method are derived.

Tools

- P1. Software tool available
- P2. Practical handbook available (explaining purpose, procedures and techniques)
- P3. Templates available

Process

- P4. Extensive description of identification and assessment phases
- P5. Time scope of processes well-defined
- P6. Responsibilities well-defined
- P7. Stage-gate processes
- P8. Iterative process
- P9. Training and assistance for employees available

Outcomes

- P10. Benefits are quantified (in euro's)
- P11. Different reports for different stakeholders available
- P12. Benefits realization KPIs defined during process

Attitude

- P13. Business departments involved in method

The criteria are applied in the MCA to select the final benefits management method, where Heineken stakeholders rate the importance of the criteria and rate the methods with these criteria.

4.2 Method selection

The identified criteria are applied in two steps. First a shortlist is created by excluding the identified methods not matching the exclusion criteria. The remaining methods on the shortlist are then evaluated in an MCA, resulting in the best method for HNL.

Exclusion criteria are formulated as conditions. If a method meets one of these conditions, it is excluded from this study. Exclusion criteria provide early elimination of alternatives whose bad performance cannot be compensated by good performance in some other criteria. In contrary, MCA is used to assess how well alternatives fit a goal given several criteria. MCA helps to decide which method best suits HNL's needs given multiple criteria, not eliminating a close second or third choice.

4.2.1 Shortlist selection with exclusion criteria

A shortlist is created by excluding the identified methods not matching the exclusion criteria by the author of this study. What follows is a step-wise application of exclusion criteria. If a method meets a criterion, it is excluded from this study. The remaining methods together form the shortlist.

The criteria applied in this section – H1, H2 and H6-H10 – are identified in section 4.1.1. They are collected from HNL stakeholders and the author of this study has sufficient context knowledge about HNL to apply them. In an iterative process, for each criterion an exclusion condition with measurement value is formulated, after which the methods not meeting the condition are excluded. No criteria from the case study at Philips are used here because the shortlist was created before the case study interviews were conducted. The timeline is depicted in Figure 4.1.

4.2.1.1 Application of exclusion criteria

Criterion H1: Support correct quantification of benefits, also with complex business cases

Exclusion criterion: No benefits quantification discussed
Measurement value: *Scope: Quantify* is ranked with ×
Excluded methods:
- 3.4.2.1 Model of Benefits Identification
- 3.4.2.3 Extended Benefit Framework
- 3.4.2.4 Benefits Realization and Management framework
- 3.4.3.6 Val IT Framework 2.0

Criterion H2: Conceptual model available

Exclusion criterion: No conceptual model for benefits management offered
Measurement value: *Techniques and Tools* does not contain 'conceptual tool'
Excluded methods:
- 3.4.1.2 Benefit Identification Framework
- 3.4.1.3 ERP benefits framework
- 3.4.1.4 Active Benefit Realization
- 3.4.1.5 Conceptual model for evaluation of IT projects
- 3.4.1.6 The IT Benefits Measurement Process
- 3.4.1.7 ISSUE Methodology
- 3.4.3.2 PRINCE2 Benefit Review Plan

Criterion H6: Identification process in place

Exclusion criterion: No benefits identification process discussed
Measurement value: *Scope: Identify* is ranked with ×
Excluded methods: -

Criterion H7: Measurement process in place

Exclusion criterion: No benefits measurement process discussed
Measurement value: *Scope: Assess* is ranked with ×
Excluded methods: -

Criterion H8: Realization process in place

Exclusion criterion: No benefits realization process discussed
Measurement value: *Scope: Realize* is ranked with ×
Excluded methods: -

Criterion H9: Responsibilities for these processes clearly defined/divided

Exclusion criterion: Responsibilities not clearly defined/divided for the processes
Measurement value: *Scope: Roles* is ranked with ×
Excluded method: 3.4.2.2 Benefits realization capability model

Criterion H10: Deliver a plan or report as output

Exclusion criterion: Neither plans nor reports are delivered as outputs
Measurement value: *Outputs* does not contain 'plan' or 'report'
Excluded method: 3.4.3.1 Benefit Realization Approach

4.2.1.2 Shortlist

The shortlist, containing all the methods not excluded in this section, is shown in Table 4.1.

Table 4.1 Shortlist of benefits management methods

Method	Section
Cranfield Process Model of Benefits Management	3.4.1.1
MSP Benefits Realization Management	3.4.3.3
Benefit Realization Management	3.4.3.4
Project Benefits Management	3.4.3.5

4.2.2 Final selection with multi-criteria analysis

The methods on the shortlist are evaluated in an MCA, resulting in the final selection of the best benefits management method for HNL. The MCA helps to decide which method best suits HNL's needs given multiple criteria, not eliminating a close second or third choice. The AHP is used to conduct the MCA, helping two HNL decision makers to find the method that best suits their needs and their understanding of the problem, rather than prescribing a "correct" decision.

The following steps are taken in the AHP:

1. Select a goal of the MCA
2. Construct a hierarchy of criteria, removing overlap between criteria
3. Assign a relative weight to each criterion by pair wise comparisons that represent importance of a criterion compared to another with respect to the goal. The relative preference is based on an ordinal scale ranging from 1 (equal importance, two elements contribute equally to the objective) to 9 (extreme importance, one element is favored extremely over another).
4. Add the alternatives (the benefits management methods)
5. Complete the model with pair wise comparisons between alternatives in context of the criteria
6. Check the consistency of the judgments.
   An inconsistency ratio expresses the internal consistency of the judgments that have been entered. A higher inconsistency ratio indicates that contradictory priorities have been computed and should never be larger than 10%. If so, assigned priorities in the pair wise comparison should be reconsidered.
7. Calculate the overall preference
8. Conduct a sensitivity analysis to investigate the impact of changing the priority of the criteria.
   It shows to which extent vagueness about inputs or disagreements between people makes any difference to the final overall result (Dodgson, Spackman, Pearman, & Phillips, 2009).

The criteria used in the MCA – H3-H5, H11, H12 and P1-P13 – are identified in section 4.1.1 and section 4.1.2. Some are collected from HNL stakeholders and the author of this study has insufficient context knowledge about HNL to apply them, and some are collected from the Philips case study, later in the process (see Figure 4.1). Two HNL decision makers for this project – the Manager Projects & Consultancy and the IT Manager – assign relative weights to the criteria and compare alternatives in context of the criteria. They have sufficient context knowledge about HNL to make the comparisons. However, they lack knowledge about the benefits management methods. A presentation with two slides for every benefits management method is created to show the methods' characteristics. The presentation slides are shown in Appendix B. Where the slides give insufficient information for the HNL decision makers to fully understand the methods, they asked the subject matter expert – the author of this study – for clarification about the specifics of the methods.

The software tool MakeItRational (BS Consulting Dawid Opydo, 2010) is used to support the AHP. It helps with pair wise comparisons of criteria, pair wise comparisons of alternatives in context of the criteria, calculating the inconsistency ratio, calculating the overall preference and conducting a sensitivity analysis. An example of pair wise comparisons in MakeItRational is shown in Figure 4.3.

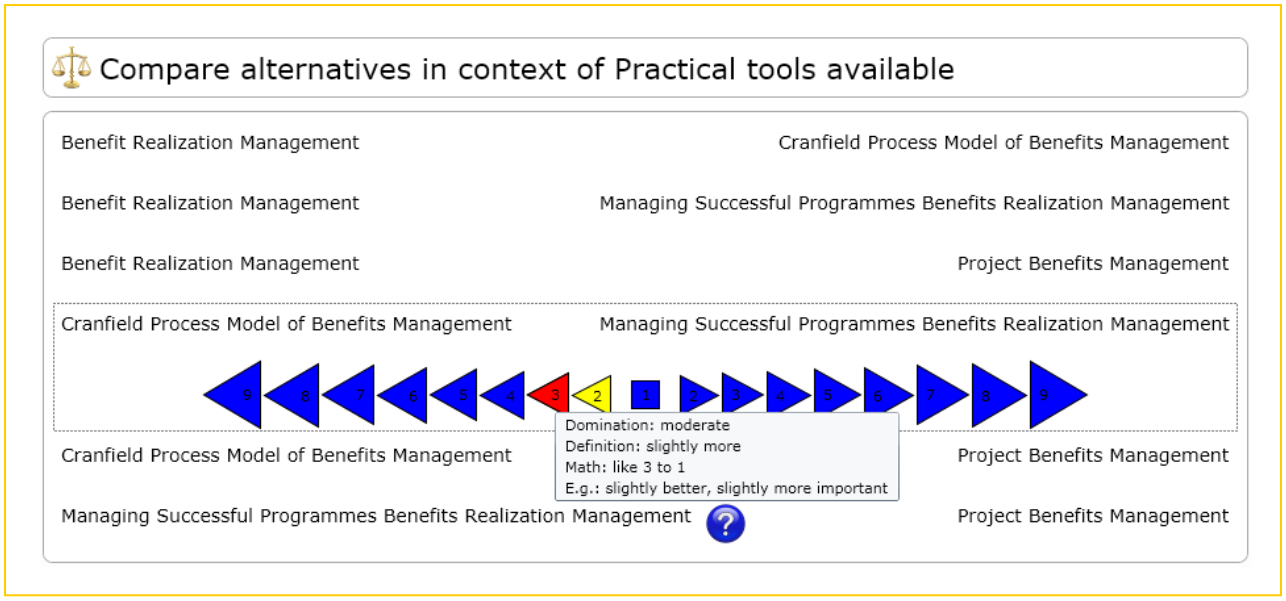

Figure 4.3 Pair wise comparison of alternatives (step 5) in MakeItRational

4.2.2.1 *Application of multi-criteria analysis*

The goal of this MCA (step 1) is to select the best benefits management method for HNL. The participants – the Manager PMO and the IT Manager – remove duplicate criteria and combine them into a hierarchy (step 2), shown in Figure 4.4. Then pair wise comparisons are made to assign relative weights to the criteria (step 3). The relative weights of the criteria are shown in Appendix C.

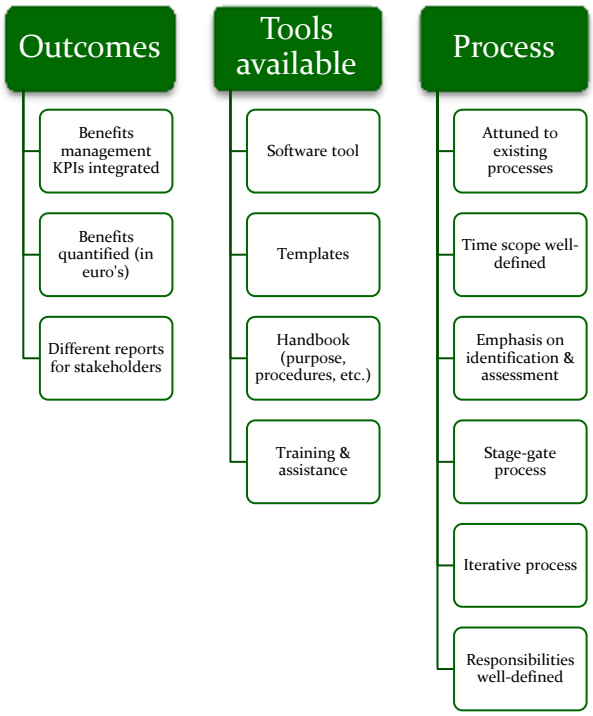

Figure 4.4 Hierarchy of criteria for AHP (step 2)

The alternatives in the AHP (step 4) are the shortlisted methods identified in the previous section, see Table 4.1. Then the model is completed with pair wise comparisons between alternatives in context of the criteria (step 5). For example; in context of *Practical tools available*, compare *Cranfield* to *MSP*. The consistency of the judgments is checked (step 6) with help of the inconsistency ratio calculated by MakeItRational. It is larger than 10% for three criteria, indicating contradictory priorities. The participants return to the pair wise comparison and reconsider the assigned priorities until the ratio for all criteria is lower than 10%.

MakeItRational calculates an overall preference (step 7), resulting in the most preferred alternative with respect to the goal of selecting the best benefits management method for HNL. A sensitivity analysis is conducted (step 8) by investigating the impact on the results of changing the relative importance of the three main criteria. The results, shown in detail in Appendix C, indicate that the participants' ratings are not sensitive to changes in the importance of the *Tools*, *Process* and *Outcomes* criteria.

4.2.2.2 Final selection

The overall ranking of alternatives, output from AHP step 7, is shown in Figure 4.5 and their overall comparison is shown in Figure 4.6. More details of the ranking and comparison are shown in Appendix C, where the sub rankings and sub comparisons of alternatives for the three main criteria is shown.

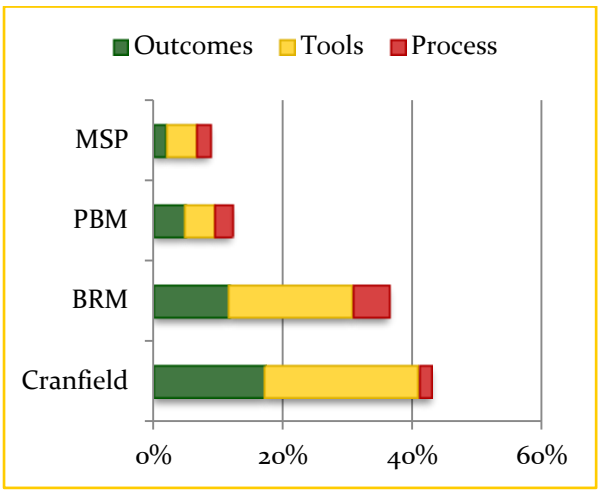

Figure 4.5 Overall alternatives ranking with relative weights (step 7)

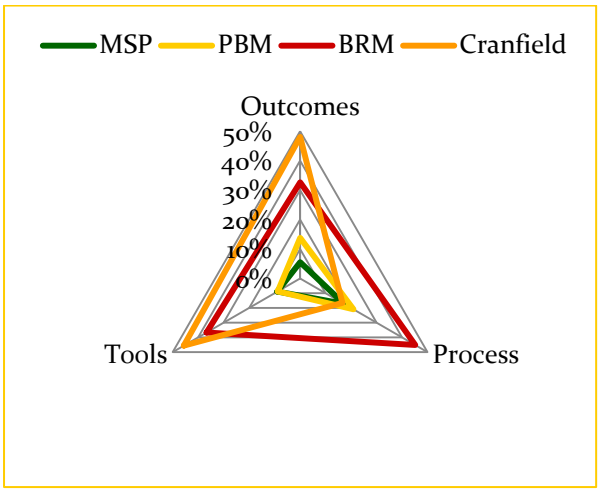

Figure 4.6 Overall alternatives comparison with relative weights (step 7)

As shown in Figure 4.5, *Cranfield* is valued as the best benefits management method for Heineken. It outscores the other methods on both the *Outcomes* and *Tools* criteria. *BRM* is the second best option, while *PBM* and *MSP* perform much worse in the MCA.

When the relative importance of *Process* is increased from 12,43% to 29,00%, *BRM* is the best method. When the relative importance of *Tools* or *Outcomes* is increased or decreased, the overall rank of the final outcome is preserved. The results are found not to be sensitive, since a 16,57% increase in *Process* importance is a very large and unlikely increase. As a result of the sensitivity analyses (step 8), the outcomes of the AHP are found to be robust and *Cranfield* remains the best benefits management method for HNL.

4.3 A further elaboration of the Cranfield method

This section describes the origins and process of the Cranfield Process Model of Benefits Management – the Cranfield method – as it is the foundation for the implementation of benefits management at HNL. An optimization of the method developed in recent research is discussed and included in the process description of the Cranfield method. How the method can be adapted and applied at HNL is discussed in the pilot evaluation and deployment plan in the next two chapters.

4.3.1 History and foundation

The inherent interdependency of *benefits* realization and change *management* is the reason why Ward and Daniel (2006) refer to the process described in their book and articles as *benefits management*. The Cranfield benefits management method is derived from extensive research undertaken by the Information Systems Research Centre at Cranfields School of Management in the mid-1990s. The original research program was carried out in collaboration with organizations from both the private and public sectors and lasted three years. The method has been further developed and refined in conjunction with other major organizations; in the period 1996-2006 key elements of the Cranfield method have been adopted by over 100 organizations based in the

UK, Europe, USA and China. Its extended application in practice has enriched the method with significant real-world insights into its practical use.

The method was developed by studying what actually happened in a number of major IT projects. Some companies were actively trying to manage the benefits, others were not. By studying the projects and particularly by conducting in-depth post-implementation reviews, a new approach was developed. The approach was then applied to new projects, resulting in less 'loss' of benefits that were clearly achievable and in most cases the identification and realization of more extensive benefits. IT costs were reduced for some investments; projects were cancelled because no benefits could be delivered, or the essential IT functionality required was more explicitly linked to the benefits, eliminating IT costs that delivered no value. The amount of IT functionality was also reduced by eliminating rather than automating procedural complexity.

4.3.2 *Optimization of the method*

Academic methods like the Cranfield method are not always translated into effective working practices (Bourn, 2006) and do not always apply to every organization and its processes (Chou & Chang, 2008). The Cranfield method is the best benefits management method for HNL, but recent research on the Cranfield method indicates that it still has some flaws and shortcomings. There is room for improvement and optimization of the method, which should eliminate the following flaws (Eckartz, Katsma, & Oude Maatman, 2011).

- The BDN is rather complex
- Limited attention is paid to contextual and temporal variations
- Little guidance is given in classification of benefits

After analyzing the Cranfield method, discussing its limitations and collecting requirements from practice, Eckartz, Katsma and Oude Maatman (2011) created an applicable extension to the Cranfield method in an iterative development process. The extension has been validated during surveys among and a workshop with consultants in the Netherlands and Germany.

A set of process guidelines and a benefit template were developed to help determine the benefits of a business case (Eckartz, Katsma, & Oude Maatman, 2011). The guidelines build upon the Cranfield method (Ward, Taylor, & Bond, 1996), allowing for the establishment of interdependencies between benefits and adding a few extra features. The method suggests assigning an owner and subject matter experts (with process knowledge) to each benefit. The benefit owner should have the authority to facilitate the required changes. The framework has a distinguishing approach by aligning benefits with overall project goals. It focuses on benefit identification and planning benefit realization.

In a meeting with the Manager Projects & Consultancy and the IT Manager of HNL, the extension is discussed with and exemplified by the researcher of this study. The extension has a strong focus on the identification, classification and quantification of benefits. A process step where interrelatedness of the benefits is determined is a valuable addition to existing methods, since a sequence in achieving the benefits can afterwards be determined. The template is practical in use and therefore adds value to the method. The extension is found to be a valuable add-on for the Cranfield method and is included in the pilot projects.

4.3.3 *The optimized Cranfield benefits management process*

The Cranfield benefits management method considers activities at the organizational level and at the individual project level. At the

organizational level it is related to program/portfolio management and strategic planning. At the project level it is related to approaches for change management, systems development, investment appraisal, risk management and project management (e.g. PRINCE2). These processes should be adapted to match the types of change involved in the investment and the nature and range of benefits expected to be achieved.

The Cranfield benefits management process draws on the model for managing strategic change (Pettigrew & Whipp, 1991) and includes some of the best practices developed in Total Quality Management, and business improvement and process excellence approaches such as Six Sigma. It enables the utilization of existing methodologies in conjunction with benefits management. The five stages in the iterative process and the links between them are shown in Figure 4.7. The stages are described in the following subsections.

4.3.3.1 *Identifying and structuring the benefits*

The main activities of this process stage are the following:

- Analyze the drivers to determine the objectives for the investment
- Identify the benefits that will result by achieving the objectives and how they will be measured
- Establish ownership of the benefits
- Identify the changes required and stakeholders implications
- Produce 'first-cut' business case for investment

A business case starts with a statement of the current issues facing the organization: the business drivers. It is important to ensure there is a common and consistent understanding of business drivers and their implications.

Business drivers: "Views held by senior managers as to what is important to the business – in a given timescale – such that they feel changes must occur. Drivers for change can be both external and internal but are specific to the context in which the organization operates." (Ward & Daniel, 2006, p. 106)

A driver analysis seeks to establish and understand the forces or drivers acting on the organization. The outputs of a driver analysis are agreed objectives for the project that clearly define what the organization intends to achieve. Drivers can origin in *content* (IT infrastructure related), *context* (internal or

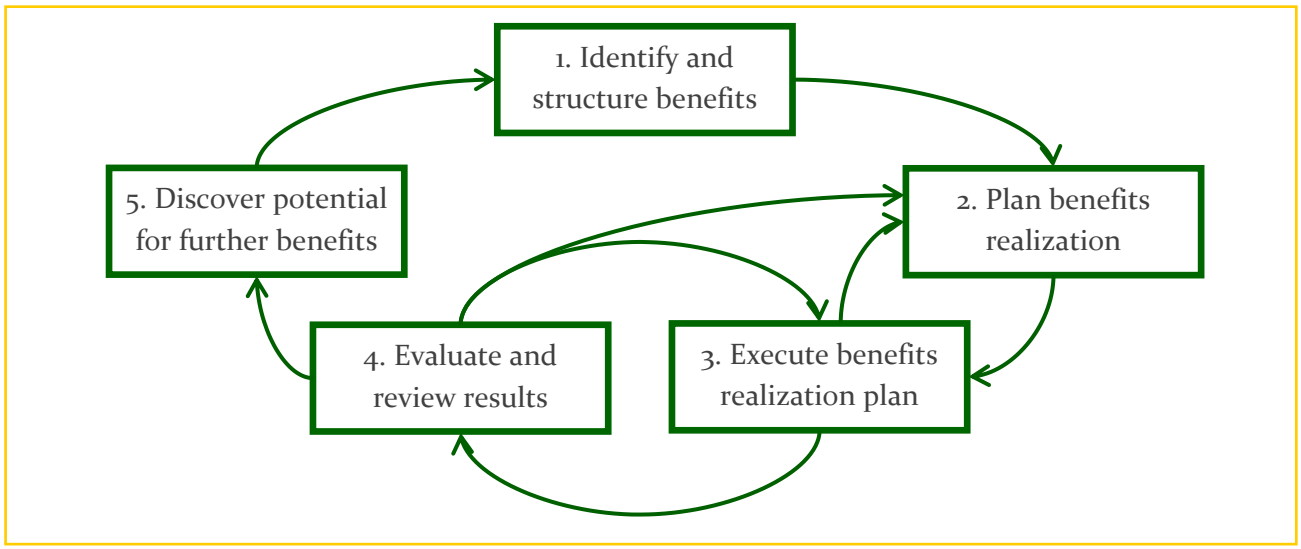

Figure 4.7 Benefits management process (Ward & Daniel, 2006)

external business area context, e.g. a reorganization or regulatory compliance) or *outcome* (focused on a specific outcome, e.g. retention of market share). The expected contribution to the business can be defined with use of the application portfolio, shown in Figure 4.8. In case of a problem driven (bottom-up) project, the problems should be formulated. In case of a strategic driven (top-down) project, the organization vision and mission should be formulated.

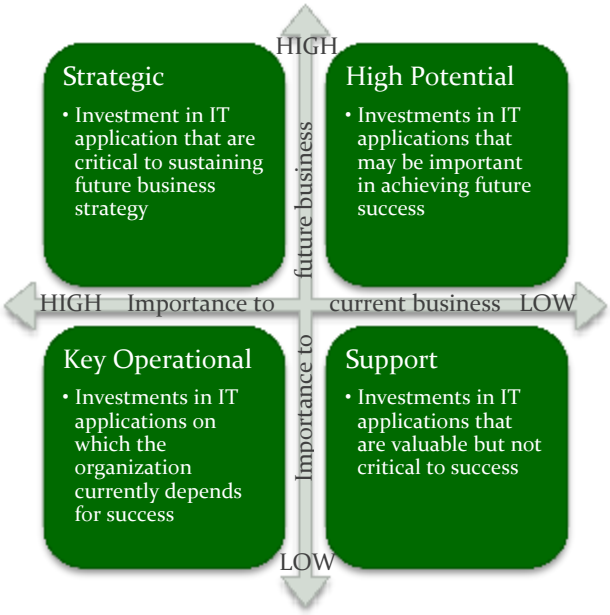

Figure 4.8 Typical drivers for different application types (Ward & Daniel, 2006)

The business case then clearly states what the proposed investment seeks to achieve for the organization: the investment objectives, a set of statements that define the way things will be if the project is successful. Every objective should be defined SMART (Specific, Measurable, Achievable, Relevant and Time bounded). Try to express them as Key Performance Indicators (KPIs).

Investment objectives: "Organizational targets for achieving the investment in relation to the drivers. As a set they are essentially a description of what the situation should be on completion of the investment." (Ward & Daniel, 2006, p. 106)

Having agreed on the investment objectives, the expected benefits that will arise if those objectives are met must be identified. Objectives are the overall goals of the investment, which are agreed on by all relevant stakeholders. In contrast, benefits are advantages provided to specific groups or individuals as a result of meeting the overall objectives.

Business benefit: "An advantage on behalf of a particular stakeholder or group of stakeholders." (Ward & Daniel, 2006, p. 107)

The potential benefits are identified in an iterative process of establishing the investment objectives and the performance improvements that technology and associated business changes could deliver. Suggested areas to look for potential benefits are shown in Table 4.2 on the next page.

For each potential benefit, determine how the benefit will be measured, who in the organization should be responsible for its delivery and who is a subject matter expert with the best knowledge of the process. If the benefit cannot be measured or no one owns it, it does not really exist. Making individuals, particularly senior managers, benefit owners builds commitment to a project and demonstrates the importance of the investment.

Stakeholder(s): "An individual or group of people who will benefit from the investment or are either directly involved in making or are affected by the changes needed to realize the benefits." (Ward & Daniel, 2006, p. 107)

The realization of benefits from IT investments depends on changes to business processes and the way people work within the organization.

Table 4.2 Suggested areas to look for potential benefits (Oude Maatman & Eckartz, 2010)

Operational	Managerial	Strategic	IT infrastructure	Organizational
• Cost reduction (tangible+intangible) • Cost reduction (intangible) • Cycle time reduction • Productivity improvement • Quality improvement • Customer service improvement • Revenue/profit increases • New/improved processes	• Better resource management • Improved decision making and planning • Improved performance	• Support for business growth • Support for business alliance • Building business innovations • Building cost leadership • Generating product differentiation • Enables worldwide expansion • Enables external linkages • Enables e-commerce • Generate/sustain competitiveness • Building business flexibility for current and future changes	• IT cost reduction • Increased IT infrastructure capability • Increased user friendliness • Application integration	• Changing work patterns + improved coordination • Facilitating organizational learning • Empowerment • Building common vision • Shift work focus to core work • Increase employee morale and satisfaction • Standardization

The BDN, shown in Figure 3.3, is a framework designed to enable the benefits to be linked in a structured way to the business and IT changes required to realize them. The required business changes and enabling changes to achieve each benefit have to be determined.

Business changes: "The new ways of working that are required to ensure that the desired benefits are realized." (Ward & Daniel, 2006, p. 109)

The types of business change frequently identified include adoption of new or redesigned processes, new roles and responsibilities, use of new measures and metrics, and new practices for managing. In contrast to business changes, some changes are only required to be undertaken once; the enabling changes.

Enabling changes: "Changes that are prerequisites for achieving the business changes or that are essential to bring the system into effective operation within the organization." (Ward & Daniel, 2006, p. 109)

Enabling changes may include training in how to use a new system, collection of current performance data to provide a baseline for future comparison, definition of new job description, decommissioning of legacy systems, and reallocation of budgets. Once the major business and enabling changes have been identified, the IT required needs to be considered. This may result in the need for additional changes.

IT enablers: "The information systems and technology required to support the realization of identified benefits and to allow the necessary changes to be undertaken." (Ward & Daniel, 2006, p. 136)

Having undertaken the identification of the benefits and the required business and enabling changes, it may become apparent that the organization does not need to invest in new IT. It is often found that many of the benefits could be undertaken with current systems, indicating that the problem is the way individuals are using existing systems.

The key output from benefits identification is a BDN. In contrary to its identification, its

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect	Time span	Probability
		Do new things (grow the business, transform the business):	Process level:	Financial:		
			People level:	Quantifiable:		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:	Measureable:		Frequency
			Technology level:	Oberservable:		
		Stop doing things:				

Figure 4.9 Benefit template (Eckartz, Katsma, & Oude Maatman, 2011)

implementation will occur from left to right. IT enablers, enabling changes and business changes are prerequisites for benefit realization.

For each identified benefit, the benefit template in Figure 4.9 should be used to get a complete description of the benefit, its owner, how it can be measured and when it can be achieved. Then a 'first-cut' business case should be produced to decide whether to proceed or to stop the investment now. The drivers, investment objectives and business benefits are the basis of the business case. The drivers and objectives explain the benefits, and why they are wanted.

4.3.3.2 Planning benefits realization

The main activities of this process stage are the following:

- Finalize measurements of benefits and changes
- Determine the change actions that will produce the improvements with accountable stakeholders
- Produce benefits plan and submit investment case for funding

The main purpose of this stage is to develop a comprehensive benefits plan and a business case for the investment, which will be submitted to management for approval. The basis for the benefits plan is the output of stage 1; identified and structured benefits.

The information and metrics required to completely fill the benefit templates (see Figure 4.9) has to be acquired by the project stakeholders. As soon as the template can be completed filled for every benefit and the BDN is completed, a Benefits Realization Plan and a Business Case have to be created. To build a robust business case, the benefits have to be made as explicit as possible. The matrix in Table 4.3 defines four levels of explicitness, based on the ability to assign a value to the benefit and the degree of current knowledge about the future expected improvement. Each benefit should initially be either observable or measurable and then be assessed such that it might be moved upwards in the table.

Table 4.3 Classifying the benefits by the explicitness of the contribution (Ward & Daniel, 2006)

Degree of explicitness	Do new things	Do things better	Stop doing things
Financial	By applying a cost/price or other valid financial formula to a quantifiable benefit a financial value can be calculated		
Quantifiable	Sufficient evidence exists to forecast how much improvement/benefit should result from the changes		
Measurable	This aspect of performance is currently being measured or an appropriate measure could be implemented. But it is not possible to estimate by how much performance will improve when the changes are complete		
Observable	By use of agreed criteria, specific individuals/groups will decide, based on their experience or judgment, to what extent the benefit has been realized		

There are a number of ways to quantify a benefit or to make it financial. There is generally a need to obtain external data or evidence to help quantification, when there is limited internal experience of a specific type of innovation. Five approaches to obtain the data or evidence:

- Detailed evidence, e.g. from existing systems
- Modeling or simulation, mainly in transactional or operational areas
- Benchmarking with 'best practices' in the industry
- Reference sites where similar changes have been made
- Pilot implementations to test the new way of working on a small scale

As soon as the management has approved the project, the project team can start executing the benefits plan.

4.3.3.3 *Executing the benefits plan*

The main activities of this process stage are the following:

- Manage the change programs – pursuing benefit delivery as well as technical implementation
- Review progress against the benefits plan

Now that the benefits are identified and their realization has been planned, it is time to carry out the plan and adjust it as necessary. Monitoring progress against the activities and deliverables of the benefits plan is just as important as monitoring progress of the IT implementation. It may be necessary to determine interim targets to evaluate progress towards the final implementation. The business project manager is the 'guardian' of the benefits plan on behalf of other business stakeholders and to ensure that each of the stakeholders carries out his or her responsibilities as defined in the plan.

Activities identified in the benefits plan should be monitored at all progress review meetings. Such meetings often focus on the IT delivery plan and issues resulting from problems with functionality, cost or timeliness. However, the same discussions should also include updates on progress towards implementing the business changes and delivering the benefits. When plans change during execution (due to changes in personnel or unexpected problems that have to be assessed and dealt with), in some situations the investment justification may need complete reappraisal to decide whether the project should continue. A starting point for any interim review should be 'what is the effect on the benefits and our ability to achieve them?' If further benefits are identified during implementation, the business project manager should obtain agreement on appropriate action to revise the benefits plan or defer any action until stage 5.

4.3.3.4 *Reviewing and evaluating the results*

The main activities of this process stage are the following:

- Formally assess whether the investment objectives and benefits are achieved
- Initiate action to gain outstanding benefits still achievable
- Identify lessons for other projects

IS/IT investments have to be evaluated after completion. The purposes of a benefit review involve both assessment of the investment itself and organizational learning. The benefit review is used to determine and confirm which planned benefits have been achieved, for unachieved benefits to decide if remedial action can be taken to still obtain them, to identify any unexpected benefits that have been achieved, to understand the reasons why certain types of benefits are (not) achieved and provide lessons for future projects, and to understand how to improve the organization's benefits management process for all projects.

All project management, systems development and change management review processes after implementation should be carried out

before the benefit review, because their results may provide explanations for the potential findings mentioned above. The benefit review should involve all key stakeholders and focus on what has been achieved, what has not (yet) been achieved and why, and identify further action needed to deliver outstanding benefits, if possible. It should be an unbiased process with future improvements in mind, not a way of allocating blame for past failures.

4.3.3.5 *Establishing the potential for further benefits*

The main activities of this process stage are the following:

- Identify additional improvements through business changes and initiate action
- Identify additional benefits from further IT investment

Some benefits only become visible when the system has been implemented or has been running for some time, and the associated business changes have been made. It is now important to consider what further improvement is possible in the light of new levels of business performance that have been achieved. This should be a creative process, involving the main stakeholders and anyone else who may be able to contribute. It is similar to stage 1, but now using the increased knowledge available to identify new opportunities and the benefits they offer. The benefits can be achieved through further business changes or with help of more IT investments. In case of more required IT investments, the potential benefits should be the starting point for investment consideration via the steps in stage 1.

5 *Benefits management evaluation in pilot projects*

The selected method for benefits management at HNL, the Cranfield method, is discussed in the previous chapter. In this chapter, the method is used and evaluated in two pilot projects at HNL with a PAR approach, involving an action component that causes positive change and requires the collaborative involvement of the 'community of research interest' (Walter, 2009). Lessons learned are derived from the evaluation of the method. The lessons are derived from problems encountered during the pilot projects, or they further improve the usage of the method by emphasizing best practices found in the pilot projects. But first, two pilot projects are selected and described.

5.1 Selection and description of two pilot projects

For the selection of two projects, complementary criteria are used. For one project, the criteria are: (i) the project is just started, and (ii) the project origins in the Commerce department. For the second project, the criteria are: (i) the project is almost finished, and (ii) the project origins in the Supply department. These criteria are chosen because the time scope makes in impossible to investigate the full life cycle of the projects – now both the start and ending of the project lifecycle are investigated – and because the Commerce and Supply departments have a different approach to operating their business and projects.

Two pilot projects are selected by the author of this study, together with the Manager PMO. The projects are selected because they match the selection criteria and because sufficient resources are available to conduct the benefits management workshops and evaluation. The selected projects are the *Excise Movement and Control System* (EMCS) project, which is almost finished in the Supply department, and the *Heineken Digital* project, which is just started in the Commerce department. These projects serve as the benefits management pilot projects of this study.

Both projects are in Execution phase (see Figure 1.1) at the time of the pilot. The EMCS project progresses into Close Down shortly after the workshops and the Heineken project progressed into Execution a few months before the workshops.

5.1.1 *Excise Movement and Control System project*

Excise duties are indirect taxes on the consumption or the use of certain products, most commonly applied on alcoholic beverages, manufactured tobacco products and energy products (motor fuels and heating fuels, such as petrol and gasoline, electricity, natural gas, coal and coke). EMCS is a computerized system to prevent fraud by monitoring movements of excise goods under suspension of excise duty within the European Union (EU), i.e. for which no excise duties have yet been paid. It will replace the paper document that currently must accompany such movements with electronic messages from the consignor to the consignee via Member State administrations (European Union, 2010).

On the 1st of April 2010 EMCS becomes operational and on the 1st of January 2011 EMCS becomes compulsory for relevant movements of excise goods. Heineken has to comply with these regulations, for which this project was started. The goal of this project is to comply with the EMCS rules as inexpensive (efficient) as possible, where the solution is accepted (taken under control) by the Supply department and IT. The start date of the project is 1st of February 2010 and the end date is 15th of January 2011.

The following pilot participants are identified:

1. Business Project Manager
2. Project Manager IT
3. Business IT Manager
4. Principal (Manager Customs)
5. Controller

5.1.2 Heineken Digital project

The Heineken.nl website is the online touch point to create a loyal relationship with its consumers. The current Heineken.nl focuses mainly on nightlife and sports agenda. Heineken also exploits several other sites aimed at interacting with consumers (for instance YourHeineken and Heineken The City).

The goal of this project is to integrate all the online Heineken propositions into Heineken.nl and opening up the content and functionality to other (social) platforms. The Heineken content (history, product, sponsorships) will be enriched to attract, convert and retain consumers as members. By using social media and mobile applications other people can be reached as well since the relevance will increase (any time / any place) and people can share it with their friends and social connections.

Objectives are to put the consumer at the center (Global Commerce mission statement), to communicate on a 1-to-1 basis with customers, to open up Heineken.nl to existing platforms, to increase the number of visitors and members of the website, and to increase relevance of the website to the target audience.

The proposed solution is five-fold:

1. Heineken.nl integration with YourHeineken and Heineken the City website
2. Mobile: mobile website, apps, Green Alert and e-loyalty program
3. Social Media integration (YouTube, Hyves and Facebook)
4. Loyalty (FourSquare), Retail activation and earning / burning of loyalty points
5. CRM readiness (standardizing data collection, ensure data quality, data quality improvement, single sign on HNL sites and/or social media and consumer management dashboard)

Since the scope of this project is very broad, only the mobile application E-app and the Facebook page subprojects are included in the scope for the pilot. The project is started in April 2010 and is planned to be finished in the second quarter of 2011. The E-app and Facebook subprojects are planned to be finished in January 2011.

The following pilot participants are identified:

1. Project Manager IT
2. Business IT Manager (developed the business case)
3. Principal 1 (Brand Manager Heineken)
4. Principal 2 (CRM Manager)
5. Controller

5.2 Evaluation in pilot projects

For the evaluation of the pilot projects, two workshops for benefits management are organized and one regular project progress meeting in between of the workshops is extended for benefits management. In the first workshop project stakeholders can get acquainted with the benefits management method, identify benefits and plan benefits delivery. In the project progress meeting the realization of benefits is discussed. In the second workshop, the benefits realization and the benefits management method in general are evaluated.

All workshops and meetings are executed when the projects are in Execution phase, although Heineken Digital is just progressing into this phase while EMCS is almost progressing into Close Down phase. The time between workshop 1 and the review meeting is roughly one month, the same holds for the time between the review meeting and workshop 2. The total time span of the pilots is roughly two months.

In the pilot execution, an exception to the schedule is made for the EMCS project. In the benefit identification & planning workshop, it turns out that due to the *must do* nature of the project, a progress review meeting and benefit realization workshop have no added value. This shortens the time spent on the EMCS pilot to just one workshop.

All evaluation activities are executed and evaluated with a PAR approach (Walter, 2009). PAR is intended to have some real world effects and is guided by a research topic that emerges from the community of interest. Advantages of PAR are the practical outcomes and positive change resulting from the problem solving focus, the research objective which aids in producing practical outcomes that are workable, and the commitment of the community of interest which enables access to community understanding and knowledge. Disadvantages lie in the possible lack of consensus on what the problem is and the lack of a timeline. Consensus on what the problem is has been reached, and the lack of timeline (originating in the iterative planning-action-observation cycle until all parties agree to stop) has been tackled by agreeing with all parties upfront on the moment to stop.

The role of the researcher of this study is twofold. The practical role is to implement PAR in such a way that a mutually agreeable outcome for all participants is produced, with the process being maintained by them afterwards. It is necessary to adopt different roles at various stages of the process, including those of planner, catalyzer, observer, reporter, teacher and facilitator. However, the main practical role is to nurture participants to the point where they can take responsibility over the process themselves and carry on when the researcher leaves. The research role is to evaluate the process, participants' feedback and participants' attitude and knowledge.

The two workshops are organized in a way where presentation slides give guidance in the process, explain process steps and give examples for clarification. The researcher gives explanation when asked, but mainly has the role of facilitator and observer. He documents the participants' suggestions on a whiteboard, which noticeably gives him a different role than the participants. The participants identify benefits and discuss them, while the researcher documents, observes and explains the process when asked. In the existing project progress review meetings, the researcher adds *benefits realization progress* to the meeting agenda and observes the process without active involvement in the meeting.

The participants' knowledge about and attitude towards benefits management is measured before and after they participate in the workshops (i.e., a "before" and "after" measure). The questionnaire (see Appendix E) to measure their knowledge and attitude contains nine statements. The participants can indicate the extent to which they agree with these statements. The statements are measured on a Likert scale (Likert, 2007), ranging from 1 (completely disagree) to 7 (completely agree).

5.2.1 *Excise Movement and Control System pilot evaluation*

Getting all the participants together in a workshop for the EMCS pilot is a difficult task, because of resistance from the principal. He does not see the value of benefits management for this project because of its compulsory nature. After some lobbying, the principal agrees to cooperate in the first workshop.

In the Identification & Planning workshop, the participants with small reluctance develop a BDN and provide information for the identified benefits. The results are shown in Appendix F. No unexpected benefits or links between benefits and activities are identified.

The most important benefit is to continue the exporting business, by complying with the new regulations. All other benefits are negligible compared to this benefit.

Sustainability, 'green IT' and 'green by IT' get a lot of attention in the HNL strategy. A sustainability benefit of EMCS is that fewer documents have to be printed and a lot of paper is saved. However, the workshop participants have no clue how to quantify the amount of sustainability. For future workshops, a template to help with easy measurement of sustainability in CO_2 reduction is added (see Appendix H).

The attitude of all participants towards the benefits management method is slightly positive for projects in general, but negative for this kind of compulsory projects. The participants think that the workshop is too detailed for compulsory projects, but that taking a moment to look for additional benefits will not harm.

No further meetings or workshops for the EMCS project are planned because of these outcomes.

5.2.2 Heineken Digital pilot evaluation

Getting all the participants together in a workshop for the second pilot project is an easier task. After an introduction about benefits management and this study by the Business IT Manager, a workshop is planned and the pilot is started.

5.2.2.1 Identification & planning workshop

In the Identification & Planning workshop, the participants develop a BDN and provide details for every identified benefit. The results are shown in Appendix G.

The participants have some difficulties with understanding the definitions of a business objective, benefit and enabling activity, and making the right distinction between them. Two quotes illustrating their confusion:

"IT solution A is cheaper than IT solution B. When we choose to implement solution A, the price difference is a benefit."

"We need a dedicated manager to organize business changes A, B and C. The manager is the enabling activity for these business changes."

The author of this study in his role of workshop facilitator exemplifies the definitions when necessary. It is important that the participants use the same definitions to keep the results of all workshops and projects comparable.

When drawing all the connections between the blocks in the BDN on a whiteboard, the participants have difficulties keeping a clear overview because of the tangle of lines and blocks. They are positively surprised with the better overview when the completed BDN is drawn in Microsoft Visio. For complex projects like this one, the workshop facilitator could choose to directly insert all information in a Visio diagram.

Adding benefit details in the benefit templates is an easy task for the participants, until the benefits need to be quantified. Quantification is a difficult task and after more than two hours in the workshop, only some ideas on how one could quantify every benefit are provided. It becomes obvious that identification of benefits and quantification of benefits could better be split into two separate workshops for complex projects.

The workshop is concluded and the identified benefit owners are asked to think of methods to quantify 'their' benefits. The author of this study visits the benefit owners shortly after the workshop and at this point they are able to quickly provide quantification for the benefits.

5.2.2.2 *Realization progress review meeting*

In a regular project board progress review meeting, the author of this study in his role of workshop facilitator asks the participants how the benefits realization is progressing and whether any issues are identified. The participants shortly discuss the identified benefits. They conclude that it is too early in the project lifecycle to see (partly) realized benefits for this project and they can identify no issues that might endanger realization of the benefits.

However, they have two additions for the previously developed BDN. With the business change 'Managing content', the participants originally only meant *input* content, but the benefit owner now realizes 'that managing owned media', or *output* content should also be part of the benefit. The Campaign Management Platform is added as an IT enabler for the business change. Then they also identify a missing arrow between the business change 'Customer-oriented communication' and the benefit 'Better sponsorship utilization'. The changes are applied to the BDN in Appendix G.

5.2.2.3 *Review & evaluation workshop*

In the Review & Evaluation workshop, the participants review the benefit realization results and evaluate the project, also looking for new opportunities resulting from this project.

The principal notices that at first he needed some time to figure out how benefits management works and what his contribution could be in the first workshop. But that become clear in the course of the first workshop. Taking a quick look at the BDN they developed, it now is all very recognizable. The blocks and links between them in the BDN have became a part of his reasoning about the project and the BDN has also been input for another design document of his department. For external communication the BDN might be too complex, but simply removing all arrows makes it better suitable.

When the participants are asked to measure their project results with the measures they originally identified, they try, but they do not get far. Since the Facebook page and mobile application have just been launched, it is too early to get results. Besides, measurements yet have to be executed. They can give an indication, but no explicit results. A benefit owner notices that he could make sure that he realizes results for one benefit far exceeding the expectations, but by doing so he jeopardizes results of other projects that contribute to the same goal of increased loyalty. Focusing on every benefit by itself as KPI does not help the overall company results. Focusing on a combination of all the identified benefits already reduces this negative influence.

The participants all agree that the thinking process has helped them in setting directions for the project. To them it is a necessity that the results of the identification workshop are used in future meetings like this one, to keep it alive in the project execution.

A minor downside of the method as deployed in the three workshops is the process focus. The participants think that giving more importance to the thinking process and focusing on what can be done with the results of the workshops is a nice addition. Measuring benefits and steering on benefit realization is one thing, actually using it in everyday project life is another.

5.2.3 *Evaluation of Cranfield method optimization*

In section 4.3.2, an extension that optimizes the Cranfield method (Eckartz, Katsma, & Oude Maatman, 2011) is discussed. The extension is used in the pilot projects.

Although the extension is validated during surveys among and a workshop with consultants, it has not yet been used in practice with people in the line organization.

Since the pilots of this study involve people in the line organization who use the extension in practice, this is a valuable validation environment for the extension. To complement existing research, the extension is shortly evaluated in this section, separately from the Cranfield method.

First, the benefit template (see Figure 4.9) is evaluated. The purpose of the template is to go through each of the steps to create a discussion and thereby making the benefits more clear and precise. This certainly works in practice. The template gives a clear frame for the discussion about the benefits. Since all the elements are in one template, the workshop participants see their input for one element in context of the other elements, which helps them to prevent and solve inconsistencies. An example is the existence of the elements 'Time span', 'Probability' and 'Frequency' next to the 'Measurement of effect' element. These three elements trigger participants to make their input on measurement on effect more specific and time bound.

Then the checking of dependencies between benefits is evaluated. The purpose of this step is to make sure that benefits do not exclude each other and to determine their relative importance. The participants have a hard time determining these dependencies in the workshops. Because all the benefits contribute to the same project objective, they do not see how those benefits could exclude each other. After an example used in the description of the extension is explained, they see how this is theoretically possible, but they cannot think of any example from their own experience where contradicting benefits are present in one project. The participants suggest to look at dependencies between benefits of this project and benefits of other running projects, because they could think of examples where contradicting projects are executed at the same time. This mostly originated in contradicting objectives of these projects due to different interests of their respective principals. Identifying the benefits of a project makes these contradicting benefits between projects earlier visible.

The suggestion (Eckartz, Katsma, & Oude Maatman, 2011) that the extension can replace the BDN of the Cranfield method is rejected by the workshop participants. Collecting the contents of a BDN in small steps before joining them up in a network reduces complexity for the participants. Eliminating the use of a BDN reduces the usefulness benefits identification for the subsequent phases of benefits realization and tracking. The BDN gives a quick overview of the benefits and their interrelatedness with objectives, business changes and IT enablers. The benefit templates on their own are a lot of tables and text, making it necessary to fully read them first. On top of that, if not all benefits can be achieved due to limited resources, the participants would not drop benefits based on their mutual dependencies, they would eliminate IT investment and business changes based on the amount of benefits they contribute to. Dropping one benefit might result in no change at all in the required business and IT changes.

To conclude, the extension is a valuable addition to the Cranfield method according to all workshop participants, but it does not replace components of the Cranfield method. Especially the benefit template is valuable to make the benefit descriptions more specific and to give a frame for the discussion about benefits.

5.2.4 *Questionnaire results*

The participants' knowledge about and attitude towards benefits management is measured before and after they participate in the workshops. The questionnaire used for the measurements contains nine statements and is available in Appendix E.

A comparison of the before (t1) and after (t2) measure concerning participants' average knowledge is shown in Figure 5.1. The time between t1 and t2 is 2,5 month.

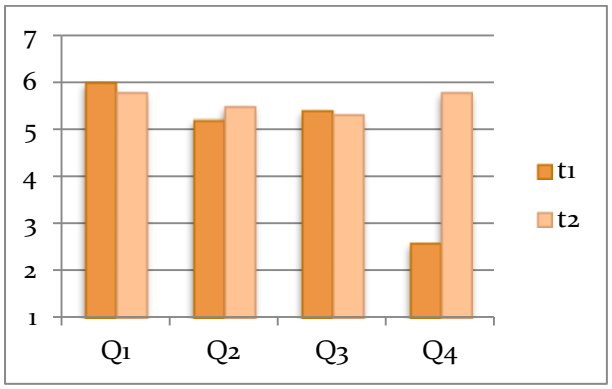

Figure 5.1 Measurements of average knowledge about benefits management

The increase (Δ) in knowledge is shown in Figure 5.2, where a negative number indicates knowledge decrease and a positive number indicates knowledge increase. The average knowledge about reading and interpreting a business case (Q1), creating a business case (Q2) and using benefits in daily work (Q3) is not significantly changed. However, the knowledge about benefits management methods (Q4) has tripled.

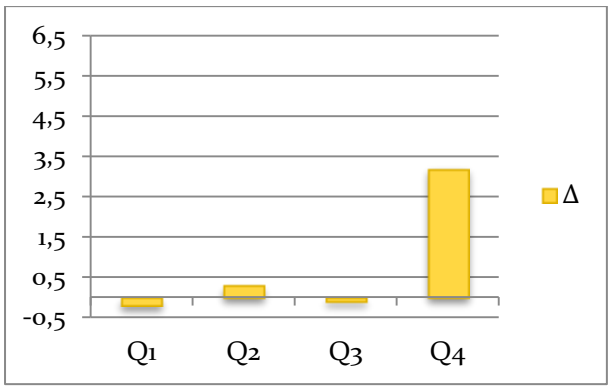

Figure 5.2 Increase of knowledge about benefits management

A comparison of measures concerning participants' average attitude is shown in Figure 5.3.

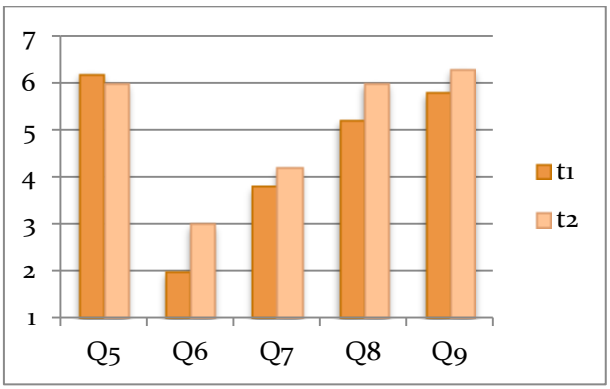

Figure 5.3 Measurements of average attitude towards benefits management

The improvement in attitude is shown in Figure 5.4, where a negative number indicates attitude deterioration and a positive number indicates attitude improvement. The average attitude towards the influence of benefits management on project results (Q5) is slightly deteriorated, but the decrease is not really significant. The average attitude towards time consumption of benefits management (Q6), the value of benefits management (Q7), the influence of benefits management on good decision making (Q8) and making the added value of investments more transparent (Q9) is improved.

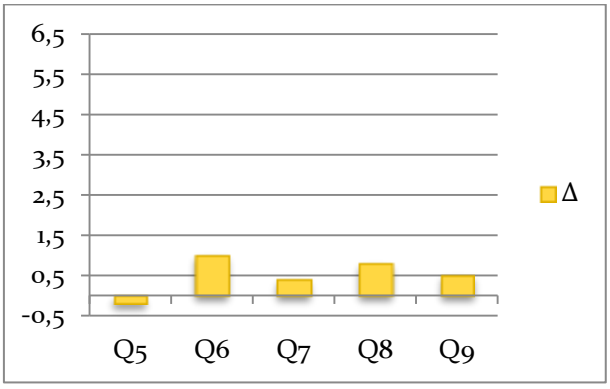

Figure 5.4 Improvement of attitude towards benefits management

When drawing conclusions from the questionnaire results, changes in knowledge and attitude can be observed. The knowledge about benefits management has increased a

lot. The attitude towards benefits management has also improved. Especially the attitude towards time consumption and towards its influence on good decision making changed for the better.

5.3 Pilot evaluation findings and lessons learned

In the evaluation of the pilots, a few differences between benefits management at HNL in practice and in literature are found, and a few problems occur in practice. The main differences and problems are discussed in this section, together they are the lessons learned in the pilot projects. The lessons are input for the HNL deployment plan.

First, full benefits management for *must do* projects (legal, fiscal or technical must do) is not feasible, because the workshops are too detailed. However, taking a moment to identify potential additional benefits is still very useful. The first workshop (for benefit identification) should still be organized, but the remaining sessions can be dropped.

Second, a workshop facilitator should make sure that all participants have a good and shared understanding of the definitions used. Only providing the definitions is not sufficient; a shared understanding has to be created. In the first workshop, the participants must be stimulated to discuss the meaning of the definitions and the workshop facilitator can promote the discussion by providing examples.

Third, in contrary to results from the Philips case study, the workshop participants express the need to use the benefit information in regular project meetings during project execution. Philips focuses at identification upfront and confirmation after a project, not at benefits management during project execution. However, the benefit 'thinking' process during project execution is greatly appreciated by all workshop participants.

Fourth, the BDN is very recognizable for the people who created it and helps them with reasoning about the project in other meetings. The suggestion that the extension (Eckartz, Katsma, & Oude Maatman, 2011) of the Cranfield method can replace its BDN is rejected by the workshop participants. The participants value the overview it provides in further meetings, giving structure to discuss benefits and showing the links between all IT enablers, business changes and benefits in just one picture.

Finally, individual benefits are more useful to guide the project execution than to evaluate project success with. Benefit owners can often easily influence realization of individual benefit targets, but with negative consequences for other projects or daily activities. Benefits realization of specific benefits is a bad KPI to evaluate the owner's performance, because it can easily be influenced and may impede negative side effects. Evaluating the combination of all benefits in a project limits these negative consequences, making it a good indication of project performance. But for measuring individuals' performance, benefits are not suitable.

The five lessons learned are incorporated into the Heineken benefits management plan in the next chapter.

6 *Heineken benefits management plan*

In this chapter a plan for deployment of benefits management at HNL is presented. First the activities to transform the current way of working to adopt benefits management are described. These *one-time activities* last for two to three years until benefits management practices are fully adopted within the organization. Then the operational activities and governance of benefits management are described. These *recurring activities* are recurring for every project management and portfolio management cycle. The main activities that form the structure of this chapter are shown in Table 6.1.

Table 6.1 Planned activities for adopting and for using benefits management

Adopting benefits mgmt.	Using benefits mgmt.
one-time activities	*recurring activities*
6.1.1 Setting the stage: Value Management Maturity 6.1.2 Ensuring Business Involvement 6.1.3 Roadmap for deployment	6.2.1 Project Management 6.2.2 Portfolio Management

This chapter discusses the recurring activities more extensively and in more detail than the one-time activities, because people at HNL will easier adopt an approach where the recurring tasks are clear-cut, the responsibilities are clearly divided and detailed directions are provided. Giving them more freedom and letting them experiment with an abstract method will result in less involvement. They will get the feeling that the method is not complete and no explicit results are expected from them. Because of that, they will quickly drop the benefits management activities and focus on their regular activities. Findings from the case study at Philips point in the same direction; at Philips most people in the line organization have difficulties understanding and deploying benefits management activities and they need very strict supervision. It is desirable to experiment with the method in order to make it easily applicable at HNL, but this has already been accounted for in the pilot projects of which the good practices are included in this plan.

A draft version of the Heineken benefits management plan is discussed with a few stakeholders at IT HNL, to improve its practical applicability and embedding in the organization. After those improvements, the plan is presented in an IT HNL MT meeting. The feedback from the meeting is included in the final deployment plan, as provided in the next sections of this chapter.

The current plan is approved by the IT HNL MT and will be included in the department's strategy and KPIs for the coming years. On top of the development and approval of this plan, the activities by the author of this study have also paved the way for including benefits management in HNL's current practice. Many people in IT HNL and the Finance department have been made aware of and involved in the benefits management method and deployment plan. Due to the active involvement in the organization, only a few small steps have to be taken to include it in the daily operations.

6.1 Adopting benefits management

This section describes the activities for adopting benefits management; the activities and governance to transform the current way of working in the next two to three years, until benefits management practices are fully adopted within the organization. The Value Management Maturity, a plan for ensuring business involvement and a roadmap for deployment are discussed in this section.

6.1.1 Setting the stage: Value Management Maturity

It is important to determine IT HNL's current benefits management capabilities in order to develop a roadmap for achieving additional capabilities. The Value Management Maturity Model (VMMM) helps with the development of a roadmap and with setting targets, in the short and in the long term.

The VMMM is a diagnostic tool to determine an organization's level of benefits management maturity (Smith, Apfel, Bittinger, Dreyfuss, McClure, & Miklovic, 2007). It has six levels of maturity in six capabilities relevant to benefits management, ranging from 0 (nonexistent) to 5 (fully mature). Most organizations fall between level 1 and level 3, with the highest number in level 2.

A simplified version of the VMMM is shown in Figure 6.1 and the full VMMM is available in Appendix D, which also contains extensive descriptions of the capabilities at Level 2 and 3.

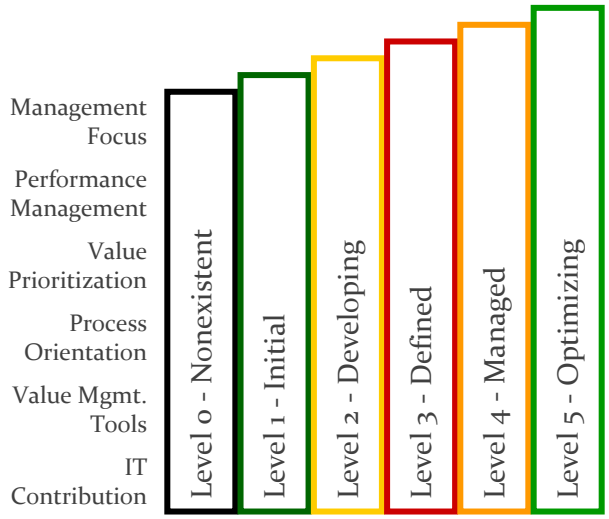

Figure 6.1 Value Management Maturity Model

For an organization to reach a certain level of maturity, all six sublevels should at least be at that maturity level. In other words, the total maturity level is not the average of the six competences, it is the minimum of all six.

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6.1.2 Ensuring business involvement

The critical point in deploying benefits management is that every business department is involved in specific IT projects, so they all need to cooperate in benefits management.

To ensure their participation, a hand in hand approach of the Finance department and IT HNL is necessary. The Finance department can demand a business case with quantified benefits and demand confirmation of realized benefits for every project (top-down). IT HNL can show the value of the benefits management method for the business and offer expertise and help in benefits management (bottom-up). The IT PMO manages the benefits management process. The hand in hand approach is depicted in Figure 6.2.

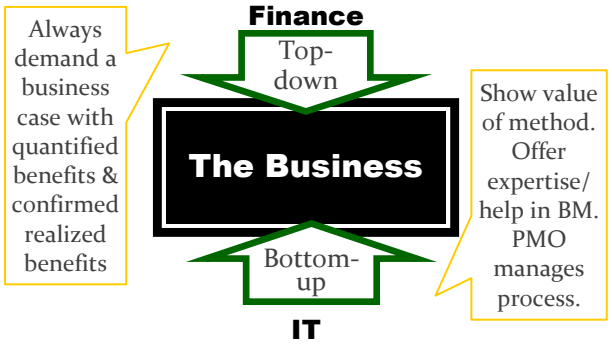

Figure 6.2 Ensuring business involvement

The cooperation between Finance and IT secures business involvement without needing support from all the MTs of the business departments. For now, this saves a lot of energy to convince every business department and it saves politics with unpredictable outcomes. In the long term, the business has to support benefits management and needs to be accountable for the results. However, in the short term this low profile approach gives earlier and better predictable results.

6.1.3 Roadmap for deployment

As shown in the previous sections, many new activities and governance processes are involved in the adoption of benefits management practices. To gradually transform the organization, the initiatives in Figure 6.3 are to be undertaken.

The timeline of the roadmap depends on support from the business. Critical is the hand in hand approach of the Finance department and IT HNL to involve the business both top-down and bottom-up. The estimated time for full organizational transformation is two to three years, according to experience in literature and at Philips.

Throughout the whole process, business co-ownership has to be secured and many departments have to be aligned in the process. The IT department has to be aligned with the business departments, but the local IT department also has to be aligned with the regional/global IT department. When developing alignment and commitment gives difficulties, consider the possibility of written contracts, including timelines and expectations.

The following three sub sections discuss the three roadmap phases depicted in Figure 6.3 on the next page, and the activities they contain.

6.1.3.1 Phase 1: Internship

The first phase in the roadmap is this internship assignment, initiated by IT HNL. The basics are developed here; an appropriate method has been selected, a deployment plan has been written, the usability of the method has been optimized and the value of benefits management is shown in two pilots.

A gate before advancing to the second phase is the shown value of benefits management. As soon as the value is shown in the pilots and the IT HNL MT agrees with the next steps of the roadmap, there is sufficient evidence to start phase 2. At the end of this study, the roadmap is approved and presented to the people that will be involved with benefits management in the future. HNL is now ready to start Phase 2.

6.1.3.2 Phase 2: Start selectively

The second phase starts with the need for more explicit support by the Finance department. The Finance MT must agree with

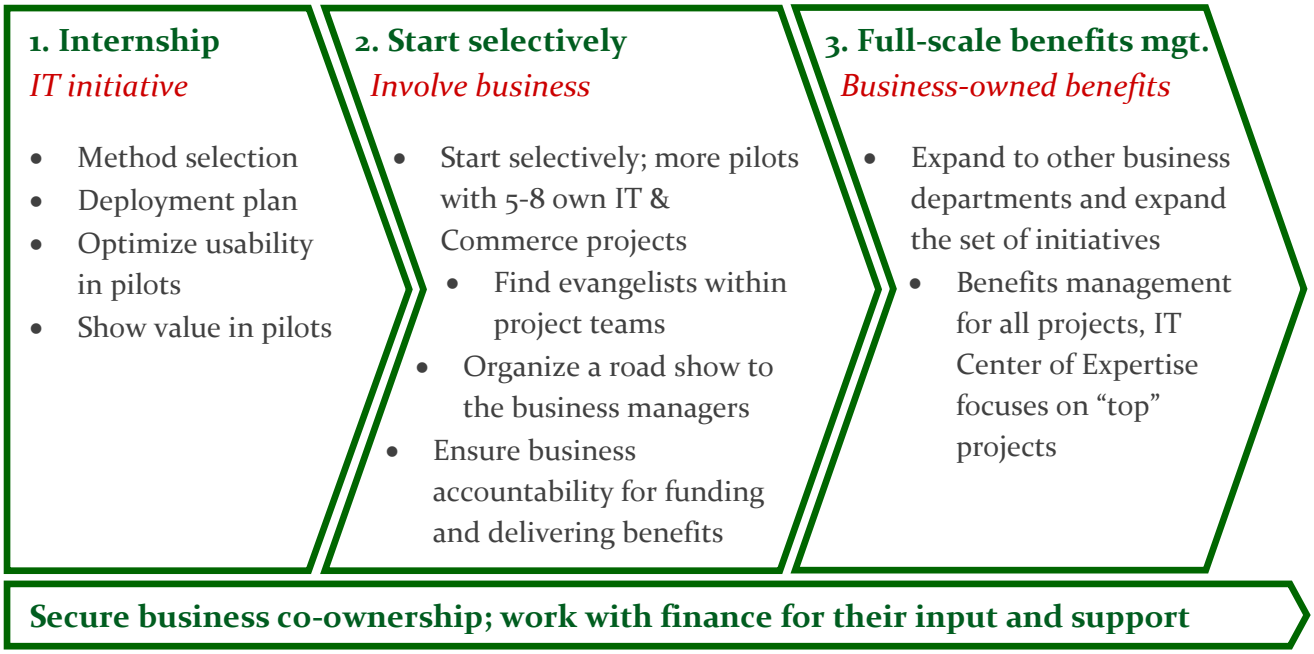

Figure 6.3 Roadmap for benefits management transformation

the short-term activities in the roadmap and with a small extension of pilot projects in the Commerce department. A steering committee of Finance and IT executives should be initiated. They own the benefits management roadmap, ensure its continuity and have decision making power. Initial steps to get approval from the Finance MT have been taken; the benefits management method and roadmap were presented to a representative of the Finance MT and he will report back to them after which a decision can be made.

When the Finance MT is supporting the process, the amount of pilot projects can be selectively extended. The Commerce department is the best choice for these pilots, because the Business IT Manager Commerce has been involved in previous pilots and because the Commerce business managers with previous involvement have a positive attitude towards benefits management. Beside Commerce projects, IT HNL should also choose a few IT-owned projects. In the first six months, five to eight projects have to be selected as pilot projects. Suitable projects are projects for which business case development has not yet been started and with an estimated budget larger than a threshold euro value.

The newly found steering committee owns the benefits management process, but on a more operational level the IT PMO manages the process by moving the project documentation and benefits realization plan through its development activities within the organization, all the way through to sign-offs by the business controllers. A significant role of the PMO is the standardization of the benefits management process across the business. The following activities are undertaken by the PMO:

- Create a collaborative environment to develop standards for business cases and benefits management. Those standards should be developed across business departments and across national/regional/global levels.
- Get the sign-offs by the business controllers. A business case with predicted benefits gets credibility when the principal shows commitment by signing it. It gives commitment to review success or failure after the project closure.
- Manage the process, not the content. PMOs do not own the business case, they manage the process by which project requests are evaluated and projects are initiated.

The knowledge of the benefits management process and practices should be collected and retained in a Center of Expertise. The benefits management Center of Expertise consists of a team experienced in benefits management. As long as the scope of benefits management at HNL is limited to IT projects, the Business IT Managers fulfill this function by facilitating the workshops and retaining the benefits management knowledge. The activities and responsibilities for the people involved have to be included in the HeiProject project management methodology.

The five to eight pilots can be used to find evangelists within project teams and project managers. A road show to the business managers should now be organized by the benefits management steering committee together with these evangelists, showing the results of the pilots.

The gate to move from the second to the third phase is to ensure business accountability for funding and delivering IT results. If the business is unwilling to have the benefits being incremental to their operating plan, that's a red flag. The initiatives to get commitment have to be expanded or improved to solve the unwillingness of the business. When the business agrees to become accountable for funding and delivering IT results, the benefits management steering committee can advance to the third phase of the roadmap.

6.1.3.3 Phase 3: Full-scale benefits management

The set of projects where benefits management is used can be extended, both inside the Commerce department but also to other business departments. When benefits management becomes common for all projects, "top" (large scale or strategic importance) can be chosen to focus on. Do no longer use the same level of measurement and progress rigor on all projects as this risks killing the effort with bureaucracy. Focus on the "top" projects instead.

A final note: lead by example. Measure the benefits of the benefits management process itself. When done well, this should yield improvement in key areas such as reduced variance of planned to actual costs and benefits, and improved return on invested capital. The benefits management capabilities must become part of the organizational way of work, rather than a reaction to tough economic times.

6.2 Using benefits management

This section describes the activities, governance and tools for using benefits management at two levels; the project management level and the portfolio management level. Existing activities at both levels are described in detail in section 1.2.1. Benefits management activities are integrated in these activities, described in the following subsections according to Table 6.2.

Table 6.2 Activities, governance and tools for using benefits management

Project Management	Portfolio Management
6.2.1.1 Project Management activities 6.2.1.2 Governance structure 6.2.1.3 Templates & Tools	6.2.2.1 Reporting activities 6.2.2.2 Planning activities 6.2.2.3 Templates & Tools

6.2.1 Project management

In the management of IT projects, IT HNL can involve the business in the use of benefits management. The business is involved bottom-up by integrating benefits management activities in the HeiProject methodology, helping the business with the activities necessary for successful benefits management. There is also top-down pressure on the business to using benefits management by the business controllers; they ask for measurable benefits in a business case and confirmation of benefits realization after project close down.

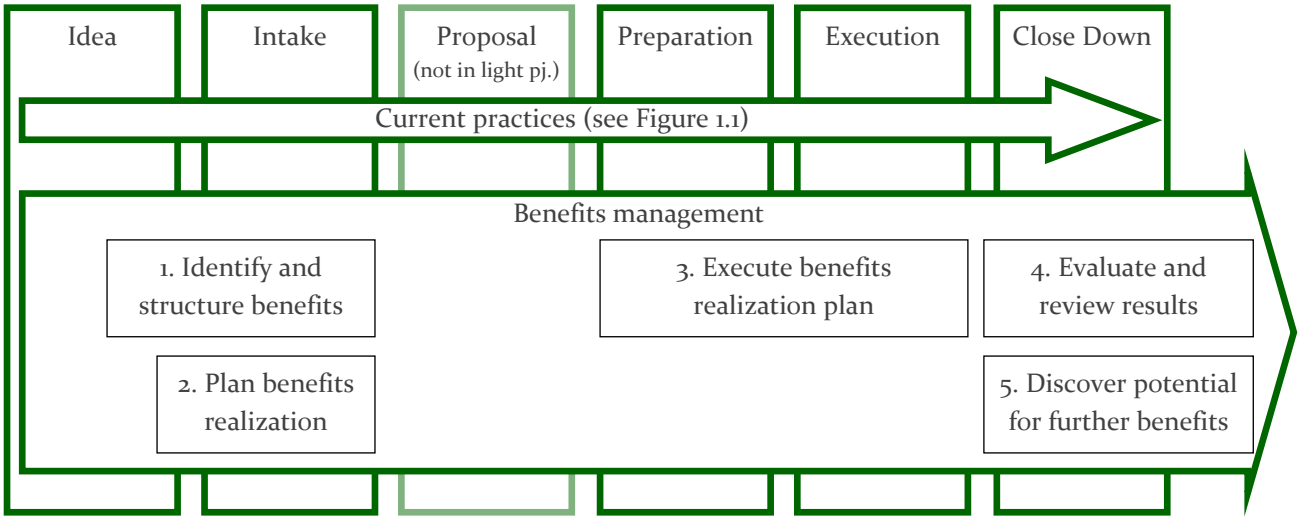

Figure 6.4 Benefits management process integrated with HeiProject

6.2.1.1 Project management activities

Figure 6.4 shows how the Cranfield process (Figure 4.7) can be integrated with the HeiProject methodology (Figure 1.1). The identification, structuring and planning of benefits (phase 1 and 2) overlap the Idea and Intake phases of HeiProject. The execution of the benefits realization plan (phase 3) overlaps the Preparation and Execution phases. The evaluation and review of results and the discovery of potential further benefits (phase 4 and 5) overlap the Close Down phase and continue after this phase.

The following benefits management activities should be added to the current practices at the project level.

Driver analysis and project selection

When creating the compulsory Idea description in the Idea phase, the Business IT Manager together with the Principal and Manager PMO analyzes the drivers to determine the objectives for the investment. Drivers can origin in *content* (IT infrastructure related), *context* (internal or external business area context, e.g. a reorganization or regulatory compliance) or *outcome* (focused on a specific outcome, e.g. retention of market share). The expected contribution to the business can be defined with use of the application portfolio, shown in Figure 4.8.

The Business IT Manager and Manager PMO decide whether this project is selected for **full** benefits management. Benefits management has low added value for *Must Do* projects, which originate in legal, fiscal or technical necessities, and for *Change Requests*, which require a small amount of work and are of a technical nature. If the project is not selected for full benefits management, one should think of additional benefits that can be enabled by a small further investment and then focus on costs.

The Business IT Manager includes the outcomes of the driver analysis and the decision about using **full** benefits management in the Idea description.

Responsible:	Business IT Manager
Accountable:	Principal
Consulted:	Manager PMO
Informed:	Project Manager
Outcomes:	Decision about full benefits management, drivers for the investment, place in application portfolio

Benefits identification workshop and benefits planning workshop

When creating the compulsory Assignment Letter (Intake phase), the Business IT Manager

organizes a Benefits identification workshop with the Principal and if applicable also with subject matter experts. Together they develop a BDN as shown in Figure 3.3 to identify the benefits that will result by achieving the objectives and the changes required, and then establish ownership of the benefits.

After the workshop the benefit owners gather information for every benefit and fill the benefit templates (see Figure 4.9) together with the Business IT Manager and the Principal in a Benefits planning workshop. In this workshop, the participants examine each of the proposed benefits in more detail. They define measurements and, if possible, quantify the benefit. For those benefits which need considerable effort to quantify, for example a pilot study, the benefits owners do the required work before the Benefits planning workshop. In the Benefits planning workshop, measurements of benefits are finalized and the benefit templates are completed.

The Business IT Manager includes the outcomes of the two workshops in the Assignment Letter. The identified change actions are now the basis of other activities in the Proposal phase, like the impact analysis, technical design and cost estimate requests.

The number of workshops needed to plan benefits realization varies depending on the scale and complexity of the project, but normally two are necessary. When complexity is low and fast progress is required, the Benefits identification workshop and Benefits realization workshop can be combined in one workshop. A prerequisite is that measurements can be defined without considerable effort to quantify benefits, e.g. a pilot study.

Success in the first two stages of the benefits management process depends on the effective sharing of knowledge between business managers and IT specialists, an exchange which is facilitated by conducting workshops rather than holding meetings or one to one discussions. Each workshop should involve the key stakeholders in order to agree the investment objectives, elicit the benefits, define the scope of the change program and understand the potential risks.

Responsible: Business IT Manager
Accountable: Principal
Consulted: Benefit owners
Informed: Manager PMO

Outcomes: BDN, benefit owners, benefit template for every benefit

Executing the benefits realization plan

In the Preparation phase, the activities identified in the benefits plan become integral components of the project plan.

In the Execution phase, the benefits realization activities are monitored at all progress review meetings. Such meetings no longer focus mainly on the IT delivery plan and issues resulting from any problems with functionality, cost or timelines. The same discussions now also include updates on progress implementing the business changes and delivering the benefits and the resolution of any issues affecting these aspects of the project. The overall success of the investment relies on the accurate alignment and synchronization of the IT and business activities, and that is less likely to happen if they are reviewed separately or at different times.

In the monthly project board report, benefits realization is included; are the currently expected benefits in line with the planned benefits? When a project is expected to no longer fully realize the planned benefits (outside an agreed tolerance), an exception report is created by the project manager and signed off by the project board.

Responsible: Project Managers
Accountable: Principal
Benefit owners
Consulted: Project Board (Principal, Business IT Manager)
Informed: Manager PMO

Outcomes: Benefit realization status in project board reports, possibly also exception report(s)

Reviewing and evaluating results, and discovering potential for further benefits

In and after the Close Down phase, the achievement of the business case is formally reviewed. The purpose of the review includes a detailed assessment of whether each of the benefits intended has been achieved or not. If it has not been achieved, the reasons for this should be established and any remedial action that could cause them to be realized should be identified. It is also to ascertain any unexpected positive of negative consequences of the new ways of working enabled by the project.

When reviewing the delivery of the intended benefits from the project, potential new benefits from further business changes or IT developments are considered using the knowledge that has been gained from the project.

The review is a milestone in the project plan, about three months after implementation is completed and when it should be possible to determine whether the benefits have occurred or are beginning to be realized. It follows any project or system quality review, since those reviews may provide some relevant explanations concerning the lack of achievement of some of the benefits. The Business Controller formally confirms realization of the benefits.

Responsible: Business IT Manager (evaluate)
Business Controller (signoff)
Accountable: Principal
Consulted: Project Managers
Benefit owners
Principal
Informed: Manager PMO

Outcomes: Official benefits realization confirmation, lessons learned, potential further benefits

6.2.1.2 Governance structure

The project management governance structure must secure and release funding and must secure reviewing and assessment of progress to ensure effective business change and realized benefits. This section discusses the governance structure for benefits management.

In the project management activities, every benefit has a business owner, responsible for realization of the benefit. The benefit owner makes sure that the project keeps contributing to the benefit he or she owns.

The Principal is responsible for ensuring benefit tracking throughout the project. The principal signs the business case and is responsible for realization of all benefits. The principal represents the business in the project board.

Benefits can be monitored and controlled with regular reporting to and input from established project governance structures (e.g. monthly project board meeting), as discussed in the previous sections.

Many planned benefits will not be realized until after the project has completed and closed down. The project's principal must ensure together with the benefit owners that appropriate structures are put in place to monitor, track and manage benefits until the final benefits are realized. The membership, format and name of post-project governance arrangements vary from project to project, but generally this group is made up of the principal

and benefit owners. Their main role is to ensure that the benefits are successfully realized and that any corrective action required are executed.

The business controller confirms benefit realization about three months after project closure. The Business IT Manager at that time asks the controller for the signoff and passes it on to the Finance department for administration.

The time investment required for the Benefit identification and planning workshop(s) for one project is about four hours for a Business IT Manager, about three hours for a Principal and about fifteen minutes for a Business Controller. The monthly project board meetings demand about ten minutes time of the people involved, depending on the presence of benefit realization issues. The review and evaluation of benefit realization takes about one hour for a Project Manager, Business IT Manager, Principal and Business Controller.

6.2.1.3 Templates and tools

In the benefits management workshop, tools and templates are used to encourage participation, to produce creativity, to support the construction of BDNs and to support elaboration and measurement of identified benefits. To guide the workshop process and explain workshop activities, a slide deck with the benefits management method description, with templates and with examples is available in Appendix H. A default template of a BDN (Figure 3.3) is included in the slide deck, but is only used as an example. A BDN is too complex and dynamic for a simple template. A software tool like Microsoft Visio or a white board can be used to create a BDN.

To describe every identified benefit, a Benefit Template (Figure 4.9) is included in the slide deck. The template can be printed and used hardcopy in a workshop, but it is also available as a digital Word file to be used in a workshop with a beamer.

The WER IT department demands a business case with benefit information to be developed for every project with a required investment larger than a threshold euro value. Currently those benefits are 'guestimates' of the Business IT Manager and the Principal. In the future the benefits follow from the benefits identification and benefits planning workshops, resulting in a more accurate estimate. No changes in the WER IT business case templates are necessary since the current template has sufficient room for these more accurate and detailed benefits.

6.2.2 Portfolio management

In the management of the IT project portfolio, IT HNL is in control of the periodically recurring planning and reporting activities. This section describes how the Cranfield method's process (Figure 4.7), plans and reports can be integrated with the following existing project portfolio management cycles; the bi-weekly (soon to be monthly) project portfolio report, a monthly benefits realization report and the yearly OP and project portfolio plan.

6.2.2.1 Reporting activities

When reporting the status of a project for the bi-weekly project portfolio report, the Project Managers report the same information as they report to their Project Board. The information is presented in a slightly different form. However, these two activities are soon to be joined in one monthly reporting activity for the Project Manager, where the provided information is used to inform the Project Board and to inform the PMO.

In this monthly reporting activity, the Project Manager must include the benefits realization status for projects where the decision has been made to apply full benefits management. The

status can be green (on schedule), yellow (behind schedule) or red (no longer fully realizable). In the project portfolio report this results in a quick overview of the benefits realization status of all projects.

At some moment in the future, benefits will be managed for almost all projects and most benefits will be made financial. At that moment, a monthly benefits realization report becomes useful. The report cumulates the benefits for all projects for every business department and splits them into the current project execution phase. For closed projects, it shows the amount of realized and the amount of unrealized benefits.

This report gives insight into the amount of realized benefits, and into the pipeline of what benefits are soon to be realized. An example report is shown in Figure 6.5. In this example, the *Support Other* projects perform very well, with almost all benefits fully realized. However, the *Horeca* projects perform relatively bad, with few confirmed benefits and many benefits in projects where the project execution has not yet been started.

The monthly benefits realization report can give a lot of useful insights, under the conditions that in most projects benefits are managed and that most benefits are of a financial nature. The report must be created very frequently because it takes about eight iterations to get skills and accuracy in the reporting activity and data.

6.2.2.2 *Planning activities*

The WER IT department demands benefit estimates to be provided for every project in the yearly OP and project portfolio plan. Demanding quantified benefit information (provided by the Business IT Managers) so far in advance is far too ambitious. However, for most projects it is possible to classify them as a Strategic, High Potential, Key Operational or Support project according to their importance for current and future business (see Figure 4.8).

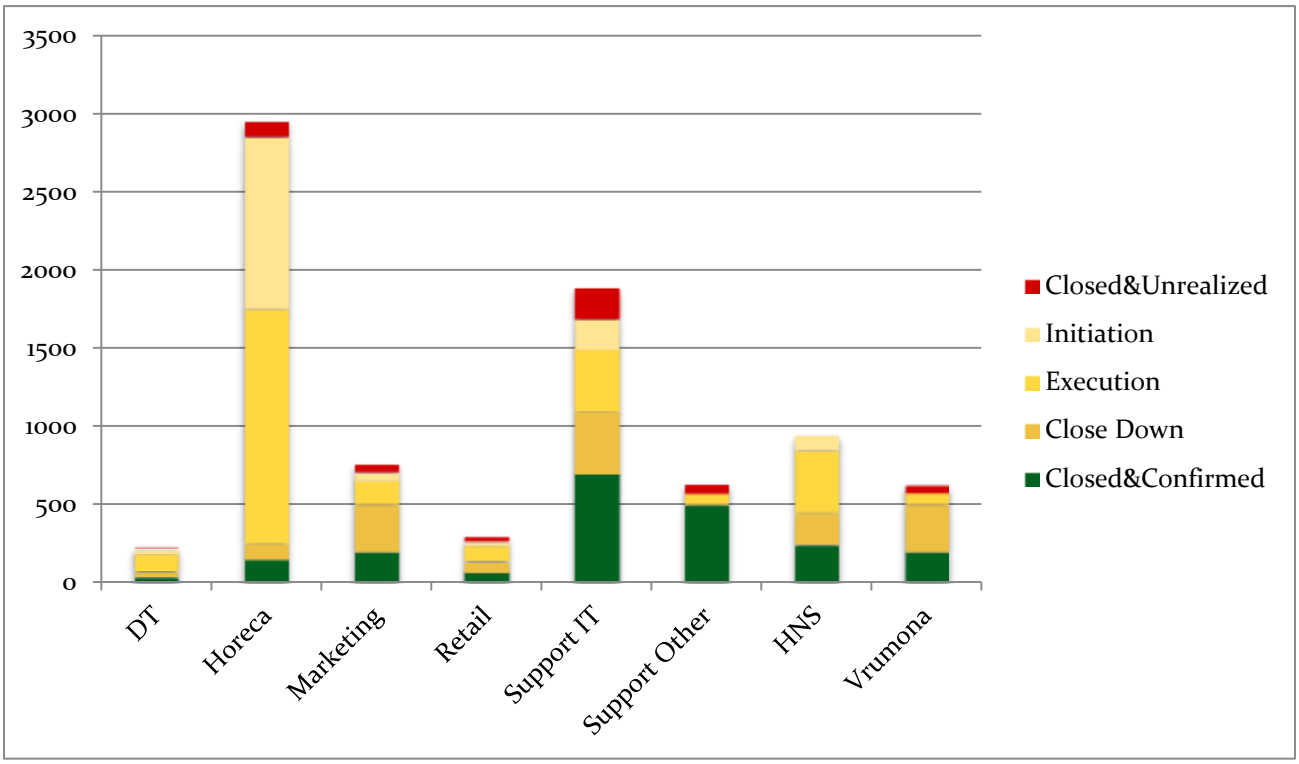

Figure 6.5 Example of monthly benefits report

IT HNL should propose to the WER IT department to classify every project as Strategic, High Potential, Key Operational or Support. This can be predicted far in advance and provides some useful information about the proposed IT project portfolio for the next year.

6.2.2.3 Templates and tools

Figure 6.5 is a template for a monthly benefit realization report. The actual report can be built in the software tool or Excel sheet where project status and benefit realization are registered. All other reports on benefits management are included in existing project reports and project portfolio reports.

On the short term, no additional tools have to be developed for the reporting activities; the current reports can be easily extended to include benefits information. However, on the long term an integrated software tool to support benefits management at portfolio level (and also project level) is indispensible. The tool can be used to manage the large volume of data, to support the benefits mapping process, to facilitate analysis and to monitor progress – including milestone and benefit tracking. It saves a lot of time because there is no need to manually combine different (kind of) reports and there is no discussion about accuracy and sources of data.

Some might disagree that an integrated tool is an essential component, and certainly for a single small- or medium-sized project it is possible to be successful using standard desktop products. However, for large projects with multiple stakeholders, perhaps several BDNs and a lot of benefits, it is very difficult to see how so much data can be effectively managed without a fully integrated software tool. The tool needs to be integrated to eliminate duplicate (inconsistent) entries and to allow for portfolio management, resource planning, and benefit tracking and reporting. It should however always be remembered that an integrated software tool is purely an enabler; it will not change the organizational culture or motivate employees to behave differently.

7 *Final remarks*

In the previous chapters, a benefits management method is selected and evaluated in pilot projects, after which a deployment plan for benefits management at IT HNL is developed. This chapter provides some final remarks. The first section presents the main conclusions of this study. Then the contribution to theory and practice are discussed. The chapter finishes with a discussion of internal and external validity, limitations to this study and possibilities for further research.

7.1 Conclusion

This study started with the observation that although most organizations develop a business case to justify the required investments for a project, only 30% of IT projects delivers the expected benefits. IT HNL wants to put more focus on benefits management to increase the amount of realized benefits and to make the added value of the IT department more explicit.

Therefore, this study set off to find the best benefits management approach for IT HNL and to learn from its execution in practice. The four research questions guiding this research are briefly answered here in order to draw a complete picture of the results of this study.

Q1. What benefits management methods are known in literature?

In a literature search with the aim to find as many benefits management methods as possible, seventeen methods are identified. Significant differences between the methods are found, among others in scope, models used and validation. An overview is constructed comparing the characteristics and completeness of the methods. The overview can be found in Table 3.2.

Q2. What are the requirements for a benefits management method at HNL?
   a. What are the requirements from stakeholders at HNL?
   b. What are good practices from a comparable company?

Twelve requirements for a benefits management method are collected in both individual interviews and group meetings with thirty-eight stakeholders from IT HNL, the finance department and several business departments.

In a case study at Philips, thirteen requirements for a benefits management method are collected and an extensive list of lessons learned is constructed.

Q3. What is the best benefits management method for IT-projects at HNL?

The number of potential benefits management methods is reduced from seventeen to four using exclusion criteria of HNL stakeholders. Then the best method is selected in an MCA using requirements from HNL stakeholder interviews and the case study at Philips. The full selection process is depicted in Figure 4.1. The resulting best method for IT-projects at HNL is the Cranfield method. An optimization of the Cranfield method resulting from recent research is discussed and used together with the method in the following research phases.

Q4. How should benefits management be deployed at HNL?
   a. How should benefits management be deployed according to literature?
   b. What good practices are learned when executing the benefits management method in practice?

A deployment plan for benefits management in IT projects at HNL is developed, containing knowledge from literature and good practices that are learned when executing the benefits management method in practice.

In addition to lessons from literature, five good practices are learned in the evaluation of the Cranfield method in two pilot projects. First, full benefits management for *must do* projects (legal, fiscal or technical must do) is not feasible, because the workshops are too detailed. However, taking a moment to identify potential additional benefits is still very useful.

Second, a workshop facilitator should make sure that all participants have a good and shared understanding of the definitions used. Simply providing the definitions is not sufficient; a shared understanding has to be created.

Third, in contrary to results from the Philips case study, the HNL workshop participants express the need to use the benefit information in regular project meetings during project execution. Philips focuses at identification upfront and confirmation after a project, but the benefit 'thinking' process during project execution is valued by all workshop participants.

Fourth, the BDN is very recognizable for the people who created it and helps them with reasoning about the project in other meetings. The suggestion that the extension (Eckartz, Katsma, & Oude Maatman, 2011) of the Cranfield method can replace its BDN is rejected by the workshop participants.

Finally, individual benefits are more useful to guide the project execution than to evaluate project success. Benefit owners can often easily influence realization of individual benefit targets, but with negative consequences for other projects or daily activities. Evaluating the combination of all benefits in a project limits these negative consequences.

The five good practices are included in the deployment plan for benefits management in IT projects at HNL. The plan contains both *one-time activities* for adopting benefits management and *recurring activities* for using benefits management. It first discusses how to adopt benefits management (determining the HNL maturity, ensuring business involvement and a roadmap for deployment) and then how to use benefits management in project and portfolio management. The draft plan is discussed with a few stakeholders at IT HNL and presented in an IT HNL MT meeting to improve its practical applicability and embedding in the organization.

The answers to the four research questions together draw a complete picture of the results of this study. The objectives of the study to find the best benefits management approach for IT HNL and to learn from its execution in practice have been fully realized. The Heineken benefits management plan is approved by the IT HNL MT and will be included in the department's strategy and KPIs for the coming years.

On top of its fairly passive selection and learning objective, this study has also paved the way for including benefits management in HNL's current practice. Due to the active involvement in the organization, only a few small steps have to be taken to include it in the daily operations.

7.2 Contributions

This study contributes to research and practice. First the theoretical contributions for research are discussed. Then the contributions for practice at HNL and other organizations are discussed.

7.2.1 Contributions for research

This study makes several important contributions to the research stream on benefits management. First, an overview and comparison of all benefits management methods is developed based on a systematic review of prior research. This comparison

brings together several diverging research streams on benefits management and can be used to analyze overlap in research and differences in methods for different contexts.

Second, the optimization of the Cranfield method is used and evaluated in workshops by individuals in the line organization. The optimization is empirically tested in practice and suggestions for further research on the optimization are given.

Third, the case study at Philips provides insight into the deployment process of benefits management in practice. Insight into the deployment path over a few years is given and lessons learned are presented. These lessons can be used to improve the practical application of the many known benefits management methods in research.

Finally, the evaluation of all activities in the full cycle of benefits management improves the external validity of the Cranfield method. Most empirical research on benefits management focuses on one activity, while this study investigates all activities in the project life cycle.

7.2.2 Contributions for practice

This study makes several important contributions for practice at HNL and other organizations. First of all, for HNL all activities in the first phase of the deployment roadmap are completed in this study: a method is selected, a deployment plan is developed, the usability of the method is optimized in pilots and its value is shown in pilots. On top of that, agreements on the next phases and on governance have been made to prepare the execution of phase 2 of the deployment plan. This study has surpassed its own fairly passive selection and learning objective; it has paved the way for including benefits management in HNL's current practice. Due to the active involvement in the organization, only a few small steps have to be taken to include it in the daily operations.

For other organizations, this study provides an overview and comparison of all available benefits management methods in research and practice. Those organizations can decide which method to use based on the information provided. This study provides them with a background on benefits management theory and benefits management experiences at other organizations.

Additionally, for organization who decide to use the Cranfield method, this study offers a practical implementation of the theoretical method; the activities, responsibilities, templates and governance required for practical deployment have already been developed.

7.3 Research validity

Both the Cranfield benefits management method and its optimization have previously been validated (Ward & Daniel, 2006; Eckartz, Katsma, & Oude Maatman, 2011). However, the benefits management deployment plan for HNL and the lessons learned in the pilot projects are newly developed in this study. Validating the deployment plan is important because it is only worth to use it if it is very likely that the recommendations will actually solve the problems. In this section the internal and external validity are discussed.

7.3.1 Internal validity

The benefits management method selected in this study, the Cranfield method, has been developed in the UK with organizations from both the public and private sectors. It has been previously validated in empirical research with over 100 organizations based in Europe, the USA and China (Ward & Daniel, 2006). The optimization of the Cranfield method, used in this study, has been validated in surveys among and a workshop with consultants in the

Netherlands and Germany (Eckartz, Katsma, & Oude Maatman, 2011). Since both the method and its optimization have previously been validated, they have no consequences for the validity of this study.

The benefits management deployment plan is developed in this study. It is based on the optimized Cranfield method, findings from the case study at Philips and findings from interviews at HNL. The Philips case study findings can be generalized for use at HNL, because the companies are similar in many ways. Philips has a turnover, an amount of employees and an amount of operating countries in the same order of magnitude as Heineken and they both have innovation, sustainability and marketing in the center of their strategy. The findings from HNL interviews can be generalized for use at HNL, because of the large amount of interviewees (thirty-eight people) and the differentiation in interviewees (people from IT HNL, the finance department and several business departments). The sources for the deployment plan are all internally valid for use at HNL.

The deployment plan (including the optimized Cranfield method) is tested in two pilot projects. The pilots are executed at HNL (in the Commerce and the Supply departments) with people from IT HNL, the finance department and the business departments. Having pilots in two departments with people from several departments strengthens the internal validity of the pilot results. However, the amount of pilots (two pilot projects, one of which was only partially finished) weakens the internal validity. The lessons learned when testing the deployment plan have a limited internal validity, but they do give a good indication of the applicability of the deployment plan.

7.3.2 External validity

External validity deals with the generalization of this study's findings for use beyond HNL. It can be described at two levels; organizations similar to HNL and other organizations.

As discussed in the previous section, the Cranfield method is previously validated in extensive empirical research and is found to be externally valid. This study confirms the external validity of the Cranfield method.

The optimization of the Cranfield method is also previously validated, but only with consultants from the Netherlands and Germany. This study has empirically tested the optimization in practice with people from the line organization. The results mostly confirm the findings of Eckartz, Katsma and Oude Maatman (2011), but a few conflicting results are found. Because the optimization is only tested in two pilot projects, there is insufficient evidence to prove the findings of the optimization study wrong. However, a different research method is used and many people are involved in the pilots. Altogether this gives a good indication and it is strongly recommended to follow up on these findings.

The deployment plan is tested in two pilot projects at HNL. The factors weakening the external validity of the deployment plan and lessons learned are the limited number of organizations in which the pilots were run (only one; HNL) and the small amount of pilots (two projects, one of which was partially finished). Since the deployment plan is based on an extensively validated method and on input from Philips and HNL, the findings have a higher external validity for organizations similar to HNL and Philips. For other organizations the deployment plan and best practices are not validated. However, due to the extensively validated work they build on, the findings do give a good indication.

7.4 Limitations and further research

The limitations of this study are discussed in this section and provide opportunities for further research. A major limitation of this study is the limited number of pilots used to evaluate the Cranfield method in practice. Two pilot projects are evaluated, one of which is evaluated in the full project lifecycle. This limits the internal validity of the study.

A second limitation is the limited number of individuals that participated in the questionnaire. The questionnaire results give an indication of increased knowledge and improved attitude, but no significant conclusions can be drawn from them.

Third, the scope of the pilot and case study limits the external validity of this study. The results can be generalized for organizations similar to HNL and Philips, but not for smaller organizations, not for organizations in different industries, not for nonprofit organizations, etc.

Finally, the validity of the results may be limited because benefits management is evaluated in a short time span, and in selected pilot projects. A longitudinal study of benefits management in many projects after its rollout would increase the validity of the study.

Further research can improve the benefits management deployment plan and the conclusions of this study. First of all, the Cranfield method can be evaluated in more projects at HNL. Second, a more formal verification of the results improves their validity. Third, evaluating the method in other organizations would improve the external validity of the deployment plan. Fourth, the questionnaire could be extended to incorporate many more individuals.

Finally, the Cranfield method could be extended and tested in non-IT projects.

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Appendix A Interviews in Philips case study

This appendix contains information about the interviews in the case study at Philips. Insight is given into the methodological value of the interviews by describing the prepared questions and the findings.

Appendix A.1 Interview questions

- What benefits management method?
    - What were considerations for choice?
    - What alternatives were investigated? Reasons for rejection?
- Deployment benefits management method:
    - Since when in use?
    - Who were involved?
        - Who took the lead in deployment?
        - Who are stakeholders?
        - Who are end users and how were they acquainted of the method?
        - Resistance about using benefits management?
        - Resistance about this method?
        - Resistance about allocated roles, time pressure, etc.?
    - How was the preparation executed?
        - Method adjusted in advance?
        - First pilots or big bang?
        - Method applicable enough, or given practical interpretation to certain parts?
        - Stakeholders with contradicting interests?
    - How was the deployment executed?
        - How embedded in existing way of working?
        - What changes necessary in existing way of working?
        - Was the method used as expected? Extra instruction, adjustment, etc. necessary?
        - Indication time investment stakeholders?
- Use benefits management method:
    - In projects, how operates:
        - identification of benefits,
        - quantification,
        - planning realization,
        - executing realization plan,
        - assessment of benefits during realization,
        - assessment/tracking afterwards?
    - About results:
        - Are benefits adjusted during quantification, e.g. because they were estimated too high upfront?
        - What happens when benefits turn out to be infeasible during a project?
        - How often are benefits realized? Is that an improvement compared to the situation before using a benefits management method?
        - How often is action taken following results of tracking afterwards?
        - Additional phenomena in other areas (both positive and negative) using benefits management?
    - About adjustments method/use of method after deployment:

- What are changes in the method or use of the method that are taken quickly after deployment, with what reasons?
- What are changes in the method or use of the method that are taken at a later stage, with what reasons? Were these reasons present before, and visible?

Appendix A.2 Findings

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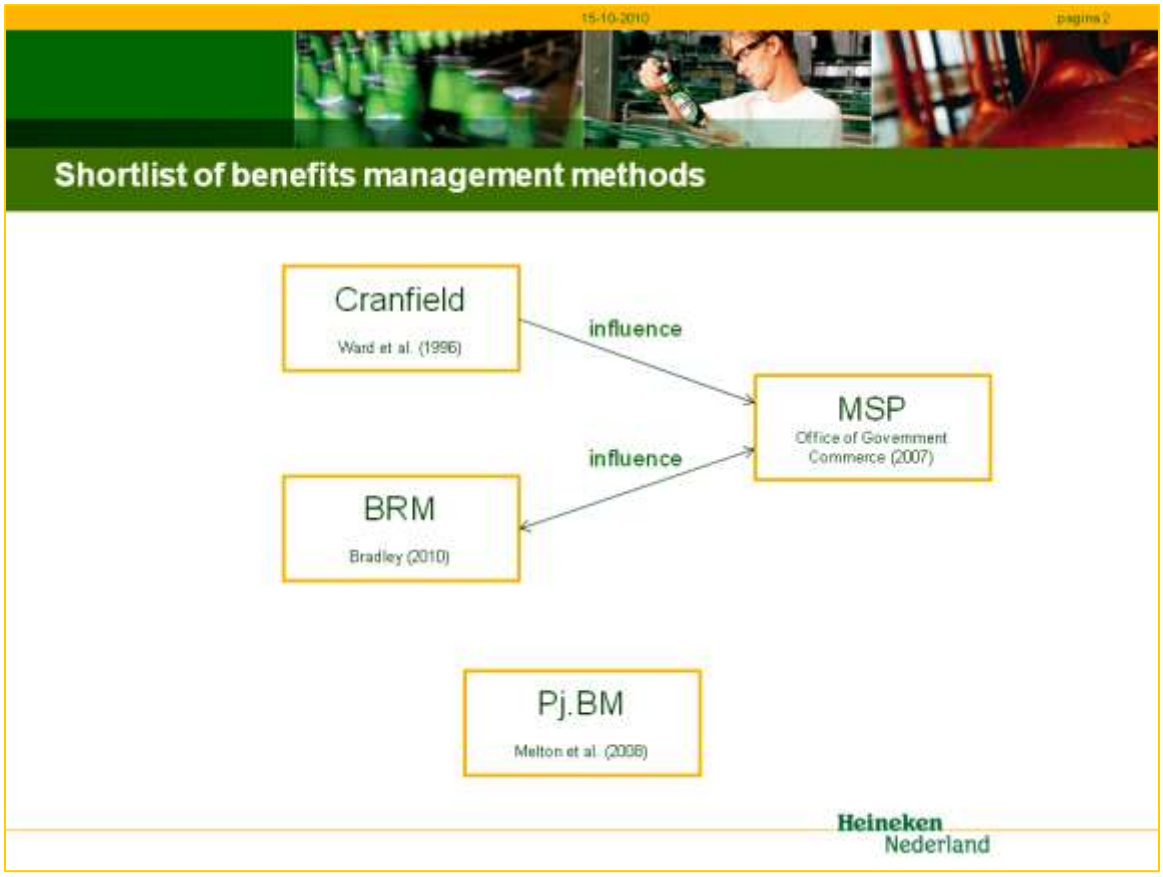
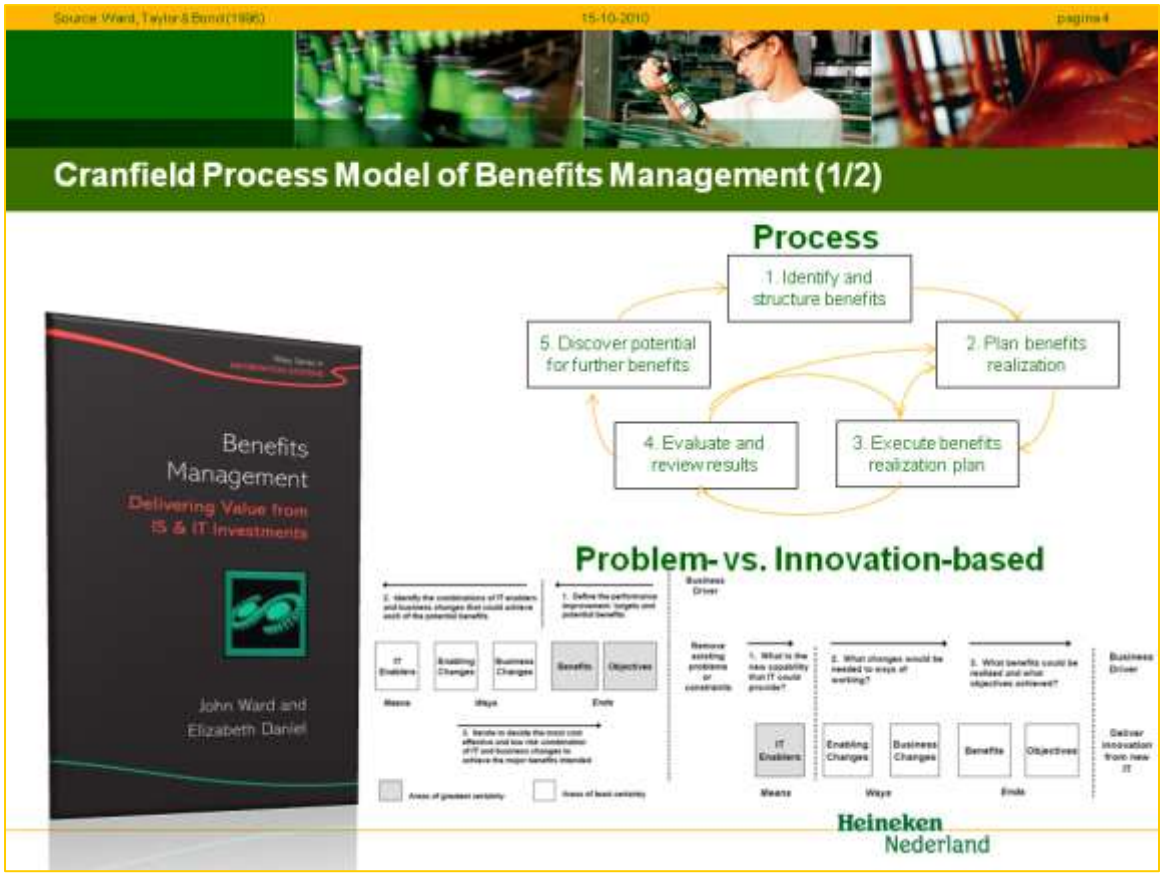
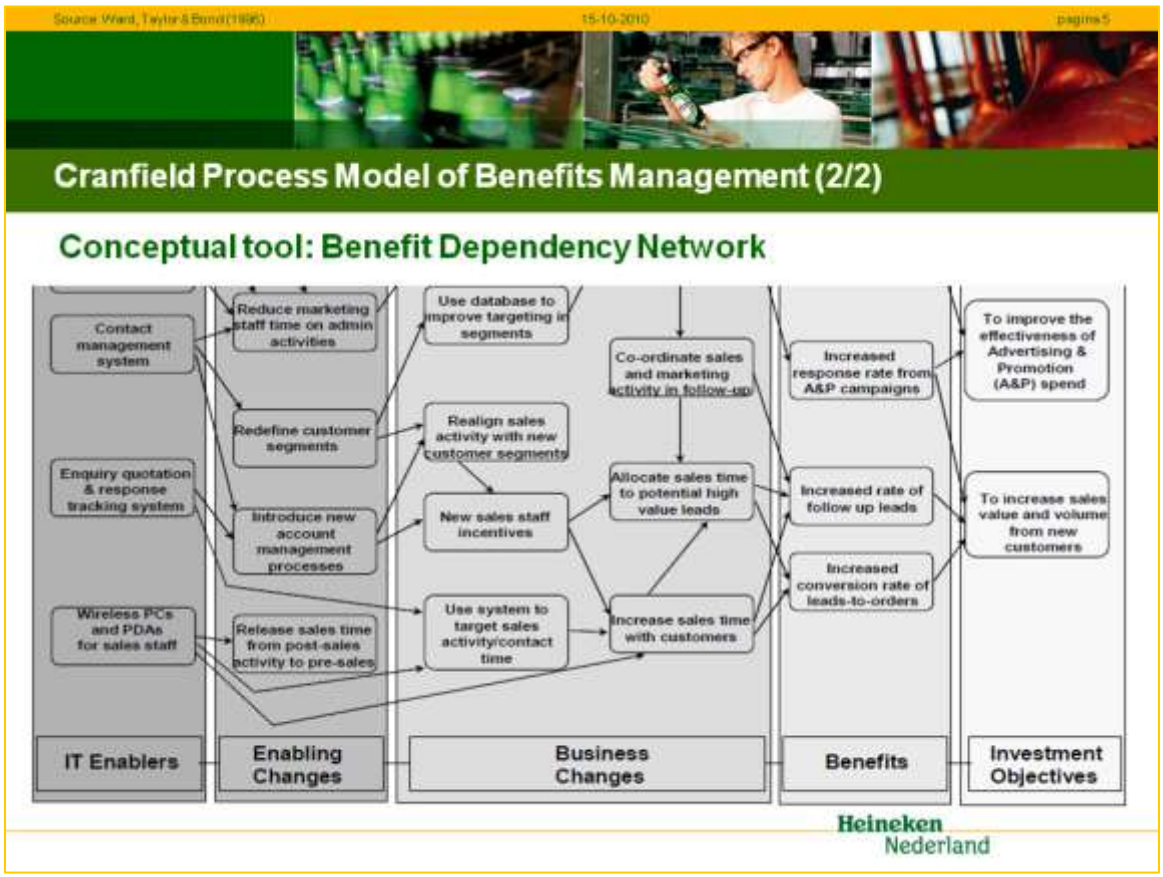
Appendix B Presentation slides for final method selection

For the final selection of a benefits management method, four shortlisted methods are compared in an MCA. To facilitate the involvement of the HNL participants in judging whether or not the alternatives confirm the criteria, a presentation with two slides for every method was created to show the methods' characteristics. The presentation slides are shown below.

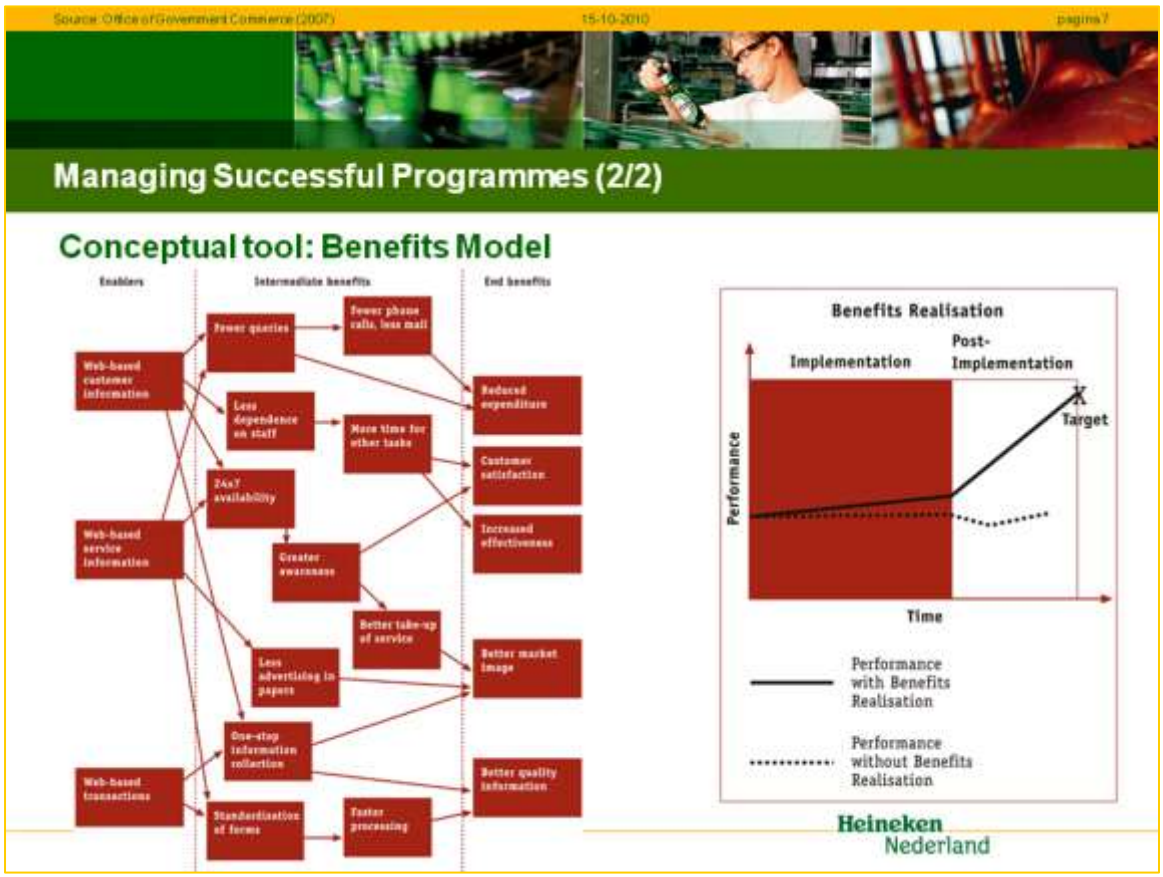

15-10-2010
pagina 2
Shortlist of benefits management methods
Cranfield
Ward et al. (1996)
influence
MSP
Office of Government Commerce (2007)
influence
BRM
Bradley (2010)
Pj.BM
Melton et al. (2008)
Heineken
Nederland


15-10-2010
pagina 3
Commonalities of shortlisted benefits management methods
Validated in practice
Discuss benefits quantification
Discuss both Identification, Realization and Assessment of benefits
Offer a conceptual tool for benefits identification
Roles and Responsibilities are defined/divided
Methods have plans and/or reports as deliverables
Heineken
Nederland

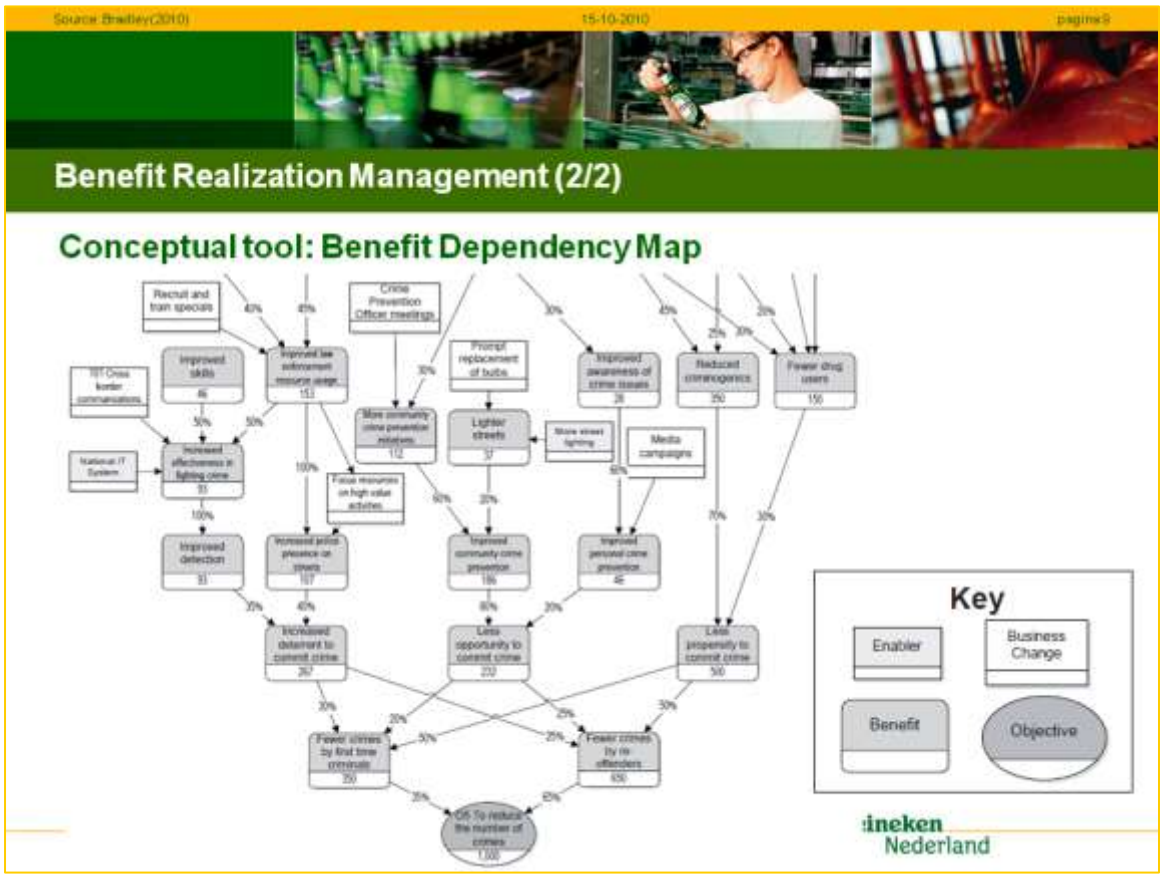

Source: Ward, Taylor & Bond (1996)
15-10-2010
pagina 4
Cranfield Process Model of Benefits Management (1/2)
Process
1. Identify and structure benefits
2. Plan benefits realization
3. Execute benefits realization plan
4. Evaluate and review results
5. Discover potential for further benefits
Benefits Management
Delivering Value from IS & IT Investments
John Ward and Elizabeth Daniel
Problem- vs. Innovation-based
Heineken Nederland

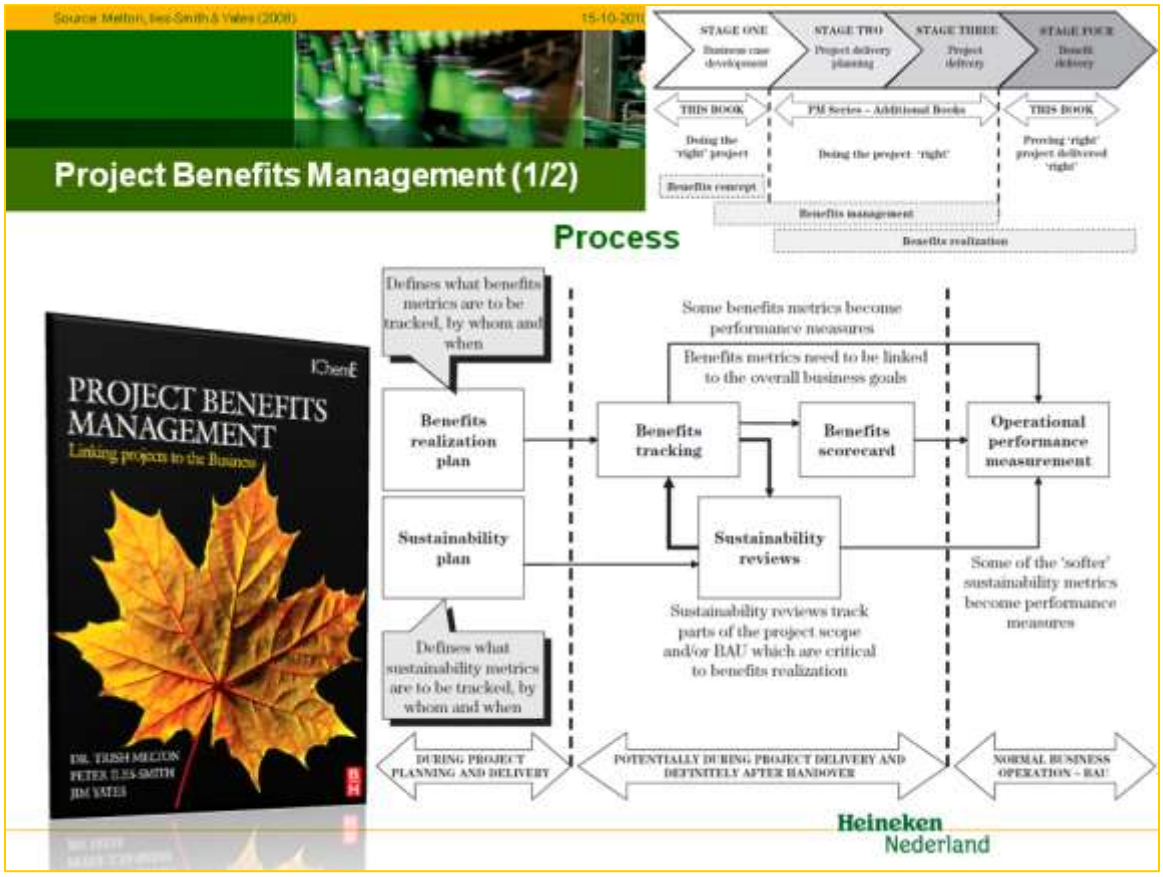

Source: Ward, Taylor & Bond (1996)
15-10-2010
pagina 5
Cranfield Process Model of Benefits Management (2/2)
Conceptual tool: Benefit Dependency Network
Contact management system
Enquiry quotation & response tracking system
Wireless PCs and PDAs for sales staff
Reduce marketing staff time on admin activities
Redefine customer segments
Introduce new account management processes
Release sales time from post-sales activity to pre-sales
Use database to improve targeting in segments
Realign sales activity with new customer segments
New sales staff incentives
Use system to target sales activity/contact time
Co-ordinate sales and marketing activity in follow-up
Allocate sales time to potential high value leads
Increase sales time with customers
Increased response rate from A&P campaigns
Increased rate of follow up leads
Increased conversion rate of leads-to-orders
To improve the effectiveness of Advertising & Promotion (A&P) spend
To increase sales value and volume from new customers
IT Enablers
Enabling Changes
Business Changes
Benefits
Investment Objectives
Heineken Nederland

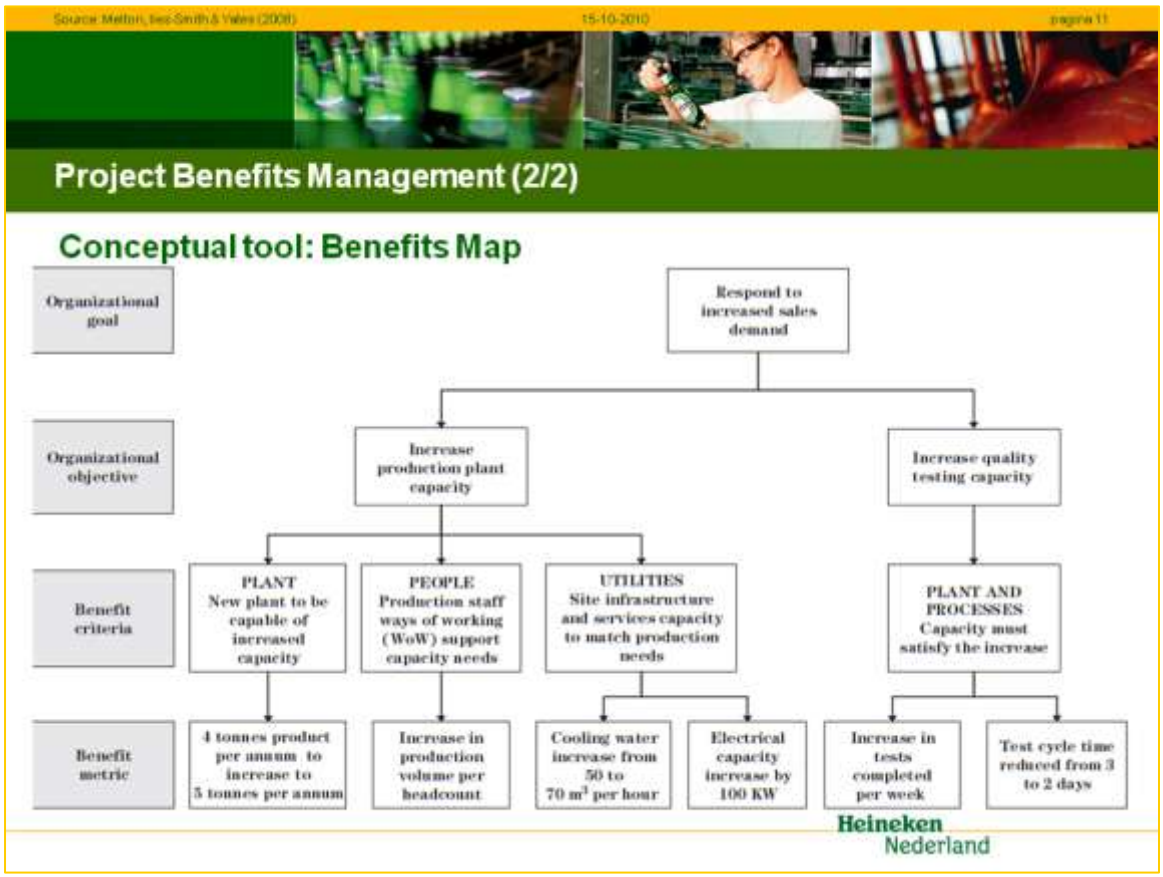

Source: Office of Government Commerce (2007)
15-10-2010
pagina 6
Managing Successful Programmes (1/2)
Realizing benefits through change
Managing Successful Programmes
Process
Desired outcomes
Develop Benefits Management Strategy
Identify and model benefits
Quantify benefits and optimise the mix
Plan for benefits realisation
Benefits realisation
Benefits review
Look for additional benefit opportunities
Heineken Nederland


Source: Office of Government Commerce (2007)
15-10-2010
pagina 7
Managing Successful Programmes (2/2)
Conceptual tool: Benefits Model
Enablers
Intermediate benefits
End benefits
Web-based customer information
Fewer queries
Fewer phone calls, less mail
Reduced expenditure
Less dependence on staff
More time for other tasks
Customer satisfaction
24x7 availability
Increased effectiveness
Web-based service information
Greater awareness
Better take-up of service
Better market image
Less advertising in papers
One-stop information collection
Web-based transactions
Better quality information
Standardisation of forms
Faster processing
Benefits Realisation
Post-Implementation
Implementation
Target
Performance
Time
Performance with Benefits Realisation
Performance without Benefits Realisation
Heineken Nederland


Source: Bradley(2010)
15-10-2010
pagina 8
Benefit Realization Management (1/2)
Process
1. Set vision and objectives
2. Identify benefits and changes
3. Define initiatives
4. Optimise initiatives
5. Manage initiatives
6. Manage performance
Engage stakeholders
GERALD BRADLEY
Benefit Realisation Management
SECOND EDITION
A Practical Guide to Achieving Benefits Through Change
Key documents:
• Benefit Realisation Plan (benefits with measures, targets and plan)
• Stakeholder Management Plan (how engaged throughout life cycle)
• Blueprint or business model (integration of enablers and business changes)
•Business case
•Programme Management Strategy
Heineken
Nederland


Source: Bradley(2010)
15-10-2010
pagina 9
Benefit Realization Management (2/2)
Conceptual tool: Benefit Dependency Map
Key
Enabler
Business Change
Benefit
Objective
Heineken
Nederland


Source: Melton, Iles-Smith & Yates (2008)
15-10-2010
Project Benefits Management (1/2)
STAGE ONE
STAGE TWO
STAGE THREE
STAGE FOUR
THIS BOOK
PM Series – Additional Books
THIS BOOK
Benefits concept
Benefits management
Benefits realization
Process
PROJECT BENEFITS MANAGEMENT
Linking projects to the Business
IChemE
Defines what benefits metrics are to be tracked, by whom and when
Some benefits metrics become performance measures
Benefits metrics need to be linked to the overall business goals
Benefits realization plan
Benefits tracking
Benefits scorecard
Operational performance measurement
Sustainability plan
Sustainability reviews
Some of the 'softer' sustainability metrics become performance measures
Sustainability reviews track parts of the project scope and/or BAU which are critical to benefits realization
Defines what sustainability metrics are to be tracked, by whom and when
DURING PROJECT PLANNING AND DELIVERY
POTENTIALLY DURING PROJECT DELIVERY AND DEFINITELY AFTER HANDOVER
NORMAL BUSINESS OPERATION – BAU
Heineken
Nederland


Source: Melton, Iles-Smith & Yates (2008)
15-10-2010
Project Benefits Management (2/2)
Conceptual tool: Benefits Map
Organizational goal
Respond to increased sales demand
Organizational objective
Increase production plant capacity
Increase quality testing capacity
Benefit criteria
PLANT
New plant to be capable of increased capacity
PEOPLE
Production staff ways of working (WoW) support capacity needs
UTILITIES
Site infrastructure and services capacity to match production needs
PLANT AND PROCESSES
Capacity must satisfy the increase
Benefit metric
4 tonnes product per annum to increase to 5 tonnes per annum
Increase in production volume per headcount
Cooling water increase from 50 to 70 m³ per hour
Electrical capacity increase by 100 KW
Increase in tests completed per week
Test cycle time reduced from 3 to 2 days
Heineken
Nederland

Appendix C Outcomes analytic hierarchy process

This appendix contains outcomes of the AHP to select the best benefits management method for HNL. Insight is given into the relative weight of (sub) criteria, the alternatives ranking for sub criteria, the alternatives comparison for sub criteria and the sensitivity analysis for main criteria.

Appendix C.1 Relative weights of criteria

The criteria in the AHP were assessed by two participants for their relative importance using pair wise comparisons. The relative weight of the main criteria is shown in Figure C.1. The relative global weight for the sub criteria of *Outcomes*, *Process* and *Tools* is shown in Figure C.2, Figure C.3 and Figure C.4, respectively.

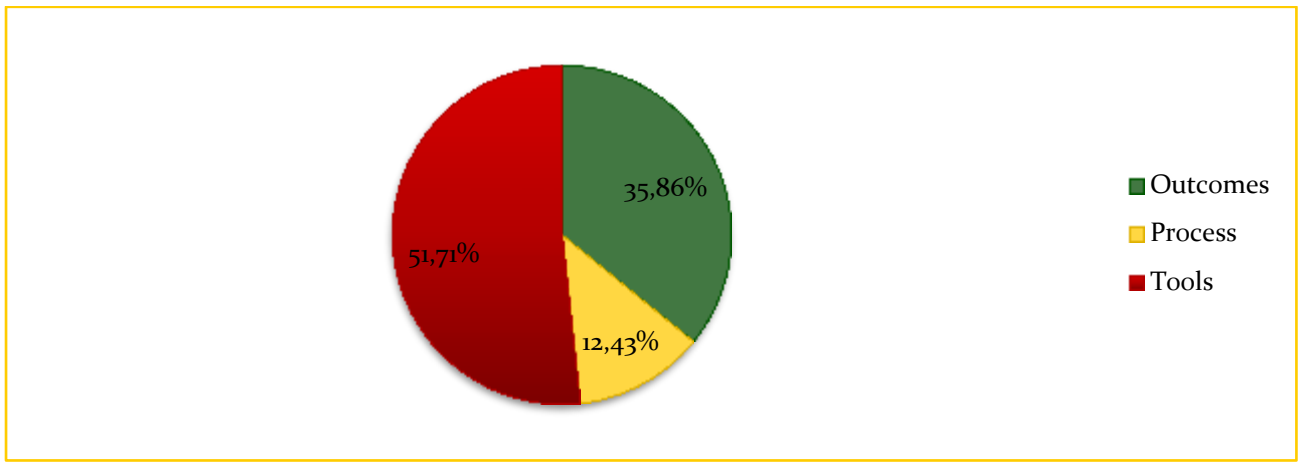


Figure C.1 Relative weight of main criteria

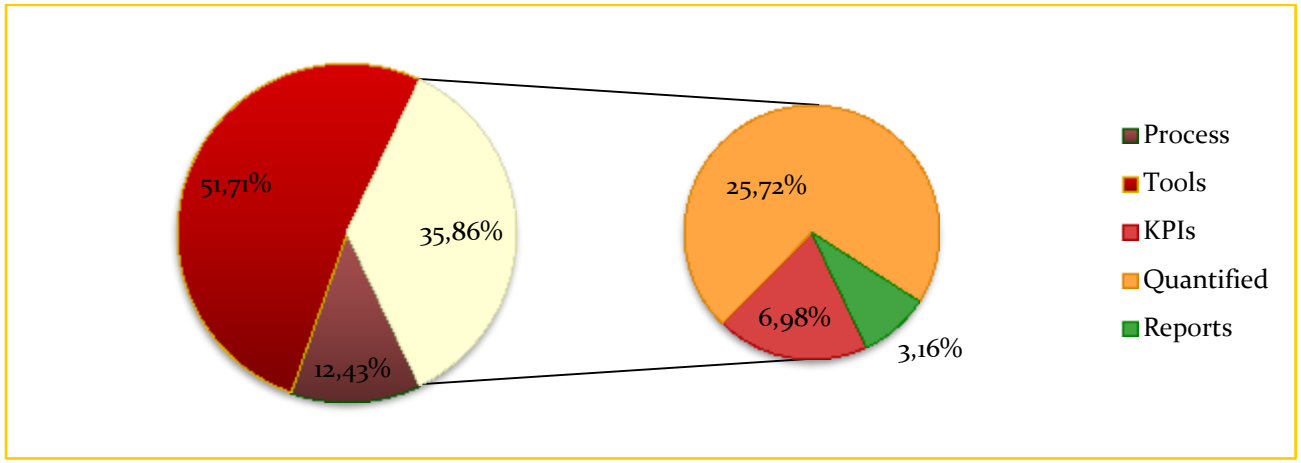


Figure C.2 Relative global weight of Outcomes sub criteria

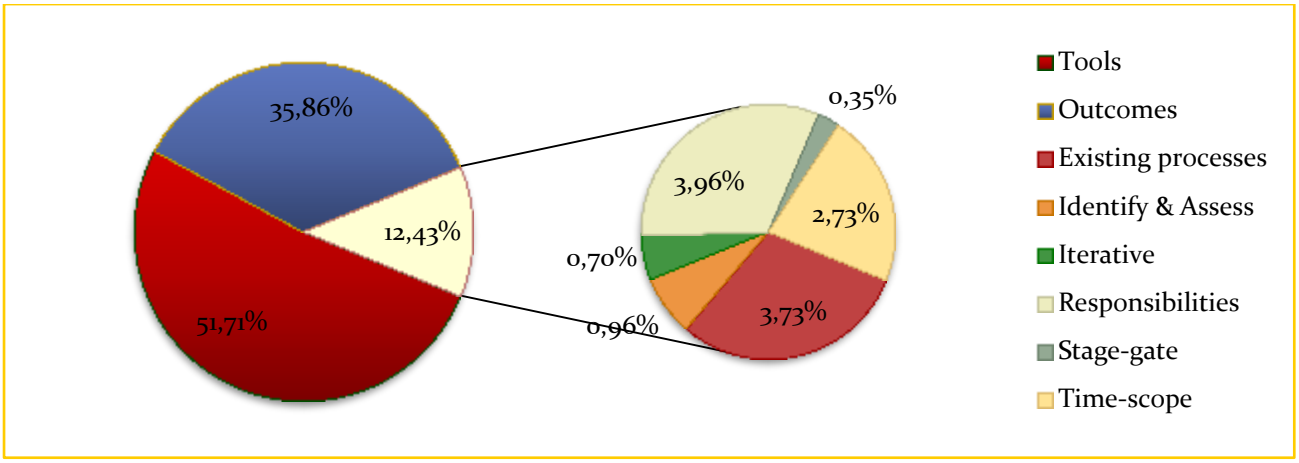


Figure C.3 Relative global weight of Process sub criteria

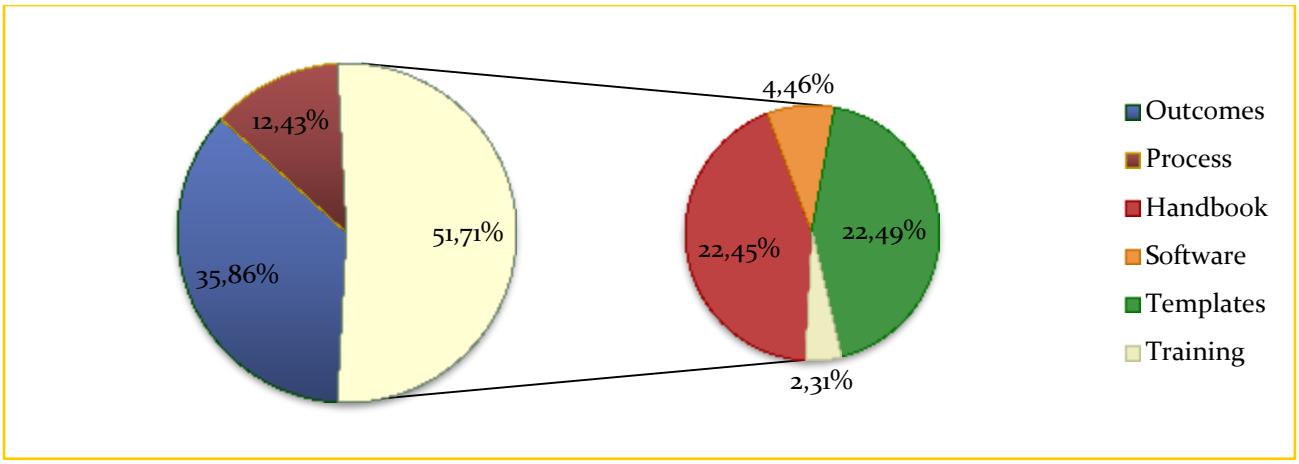


Figure C.4 Relative global weight of Tools sub criteria

Appendix C.2 Alternatives ranking

After calculating the preference of the alternatives to the criteria, the most preferred alternative for every main criterion is computed. The ranking of alternatives for the sub criteria of *Outcomes*, *Process* and *Tools* is shown in Figure C.5, Figure C.6, and Figure C.7 respectively.

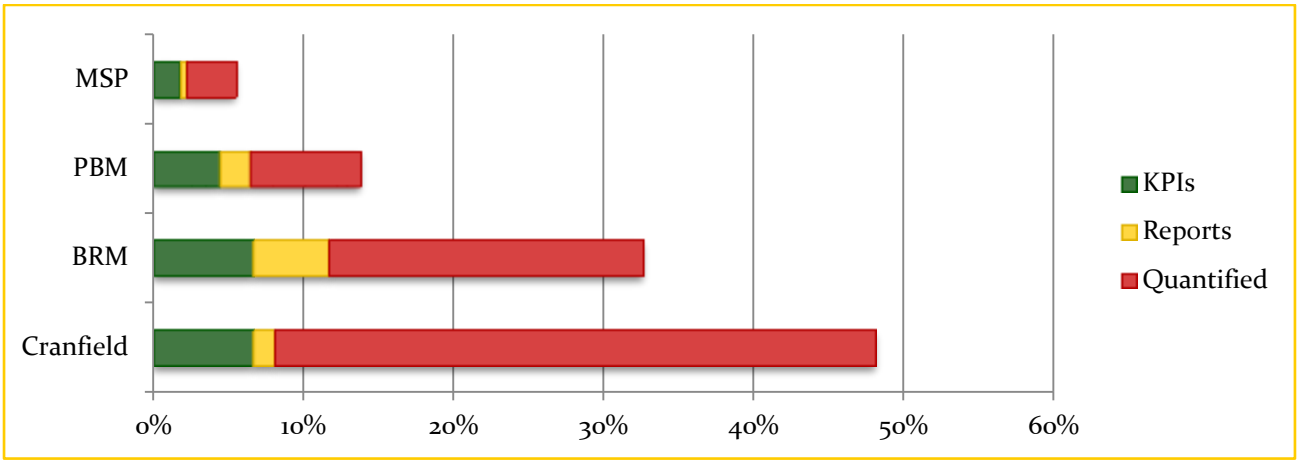


Figure C.5 Alternatives ranking on Outcomes sub criteria with relative local weights

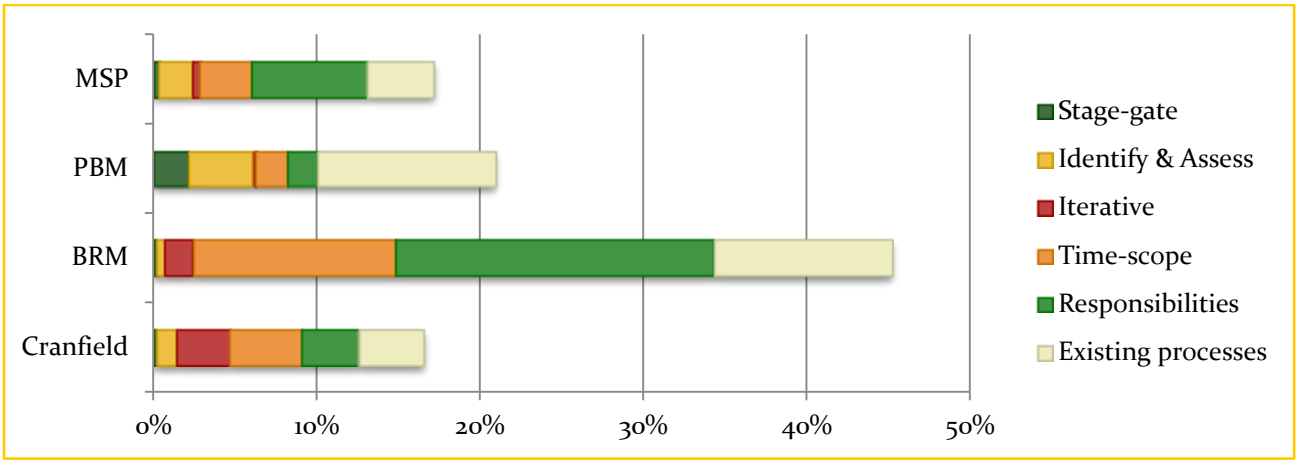


Figure C.6 Alternatives ranking on Process sub criteria with relative local weights

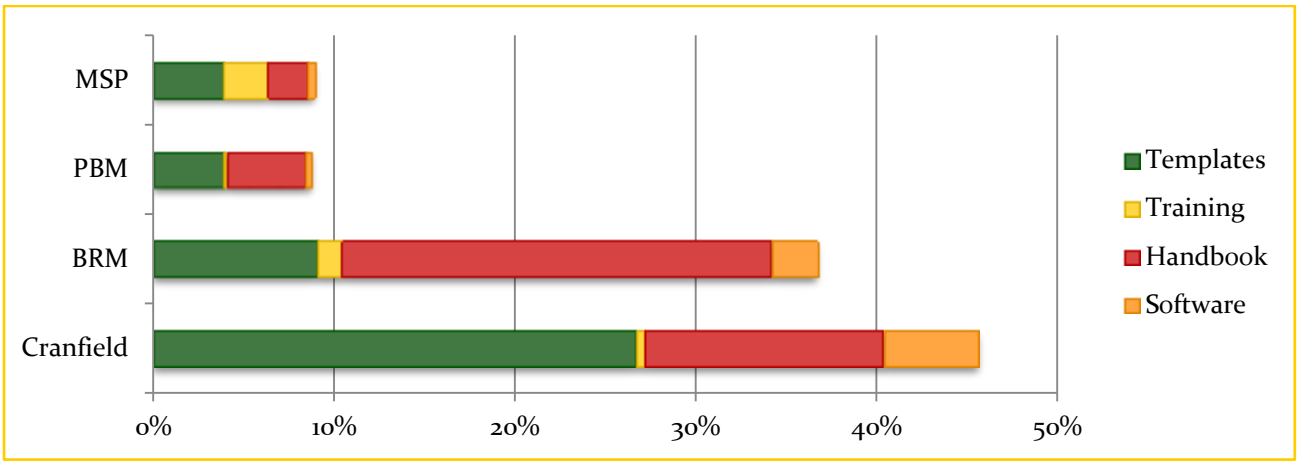


Figure C.7 Alternatives ranking on Tools sub criteria with relative local weights

Appendix C.3 Alternatives comparison

After calculating the preference of the alternatives to the criteria, the most preferred alternative for every main criterion is computed. The comparison of alternatives for the sub criteria of *Outcomes*, *Process* and *Tools* is shown in Figure C.8, Figure C.9, and Figure C.10 respectively.

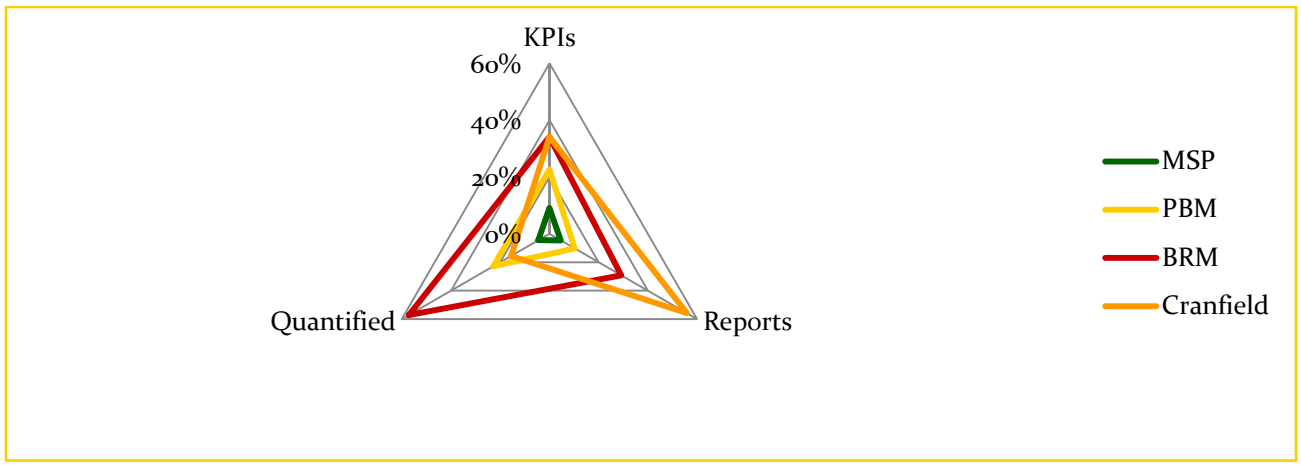


Figure C.8 Overall alternatives comparison on Outcomes sub criteria with relative local weights

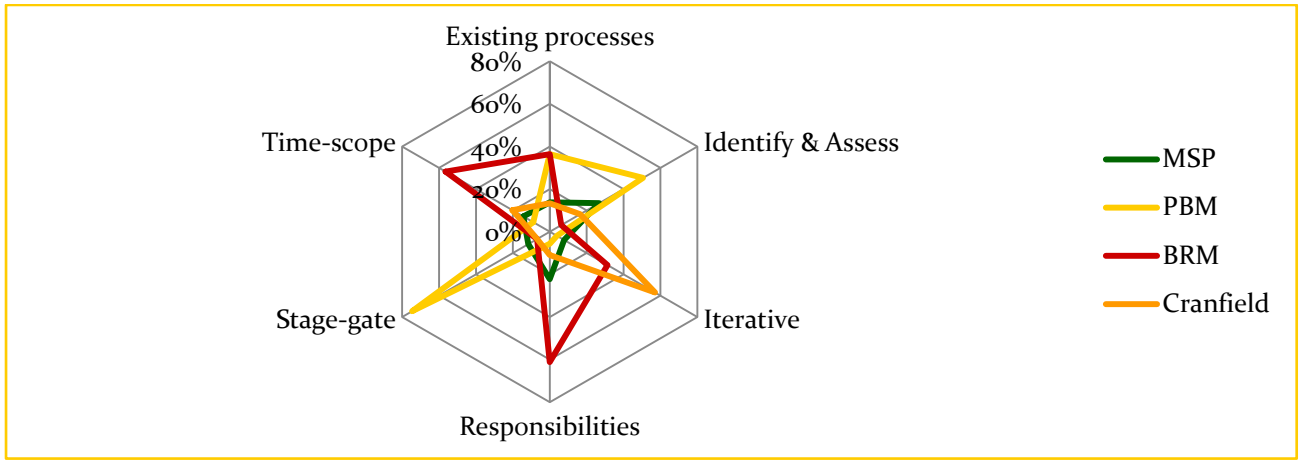


Figure C.9 Overall alternatives comparison on Process sub criteria with relative local weights

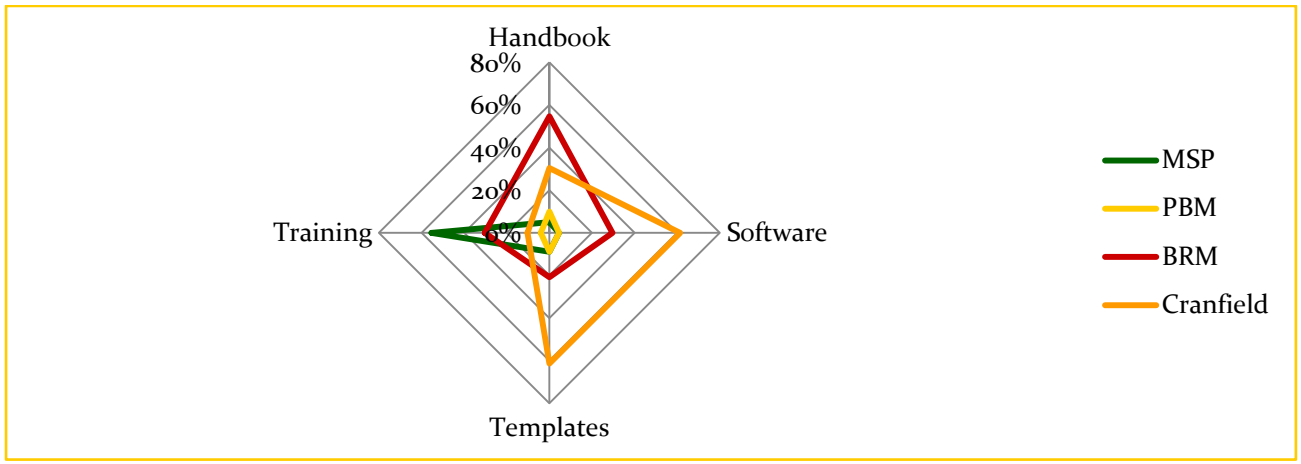


Figure C.10 Overall alternatives comparison on Tools sub criteria with relative local weights

Appendix C.4 Sensitivity analysis

Three sensitivity analyses are conducted to investigate the impact of changing the priority of the criteria. The sensitivity of the participants' ratings to changes in importance of the *Outcomes*, *Process* and *Tools* criteria is shown in Figure C.11, Figure C.12 and Figure C.13, respectively. As can be seen in Figure C.12, when the relative importance of *Process* is increased from 12,43% to 29,00%, *BRM* is the best method.

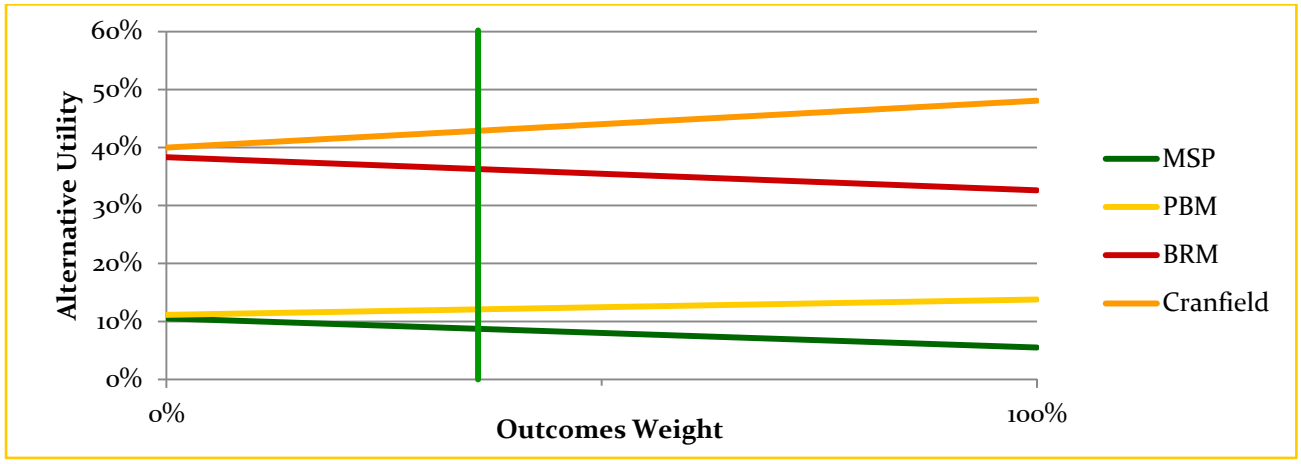


Figure C.11 Sensitivity analysis for Outcomes criterion (calculated weight: 35,86%)

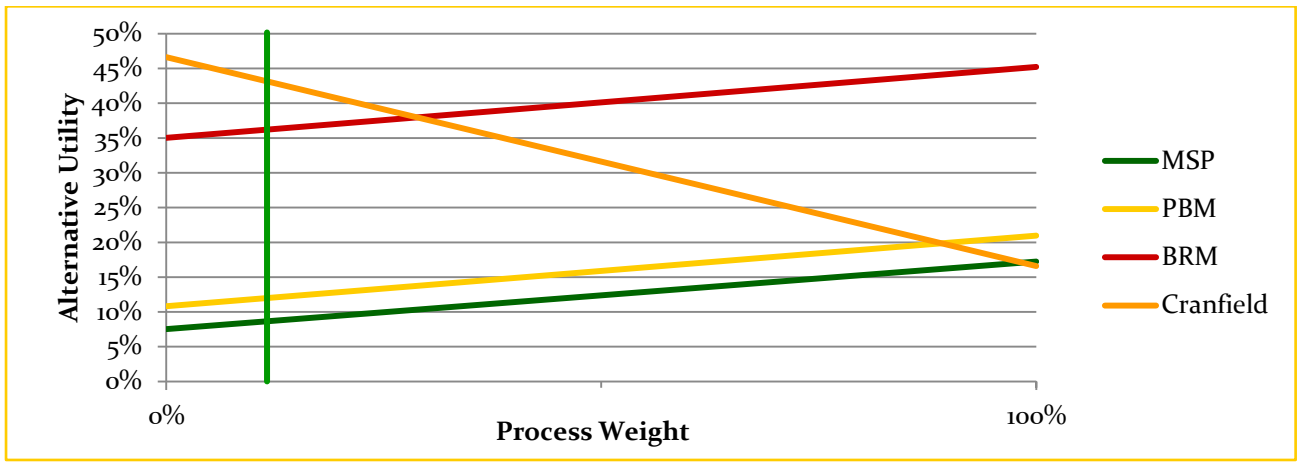


Figure C.12 Sensitivity analysis for Process criterion (calculated weight: 12,43%)

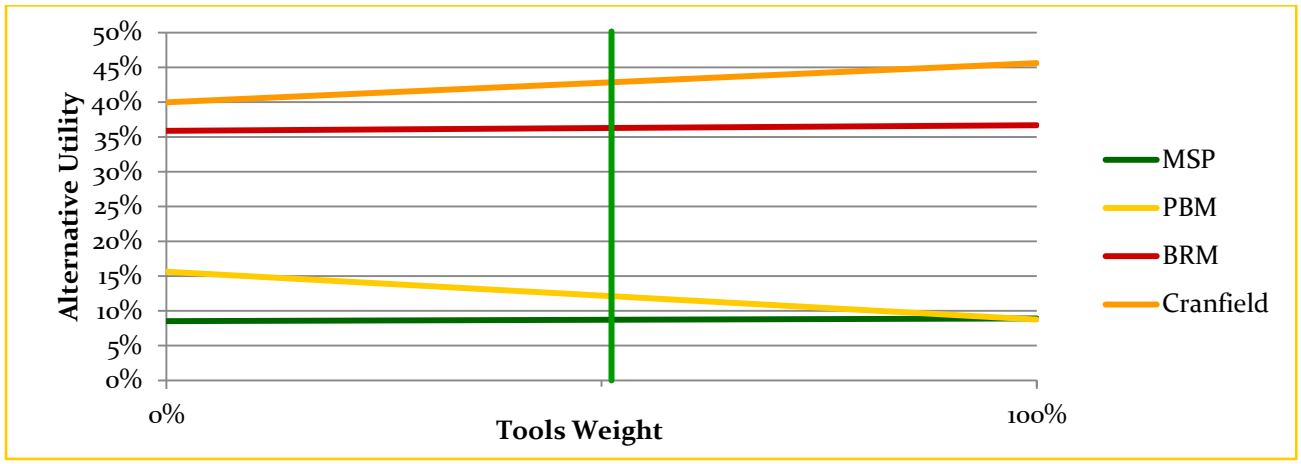


Figure C.13 Sensitivity analysis for Tools criterion (calculated weight: 51,71%)

Appendix D Value Management Maturity

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Appendix E Benefits management questionnaire

Name: _____

Please indicate, on a 7-points scale, the extent to which you agree with the following statements.

1. I know how to read and interpret a business case

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

2. I know how to create a business case

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

3. I use benefits to guide my projects and/or daily operations

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

4. I have knowledge about benefits management methods

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

5. I think that overall project results will be better when managing benefits

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

6. I expect benefits management to take a lot of my time

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

7. I think that the value of benefits management is greatly overrated

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

8. I think that by deploying benefits management, I will be able to make better decisions about a project

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

9. I expect benefits management to make the added value of investments more transparent

   completely disagree **1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7** ***completely agree***

Appendix F EMCS pilot results

EMCS is a Key Operational project.

Appendix F.1 Benefits Dependency Network

The following Benefits Dependency Network is drawn in a Benefits identification workshop.

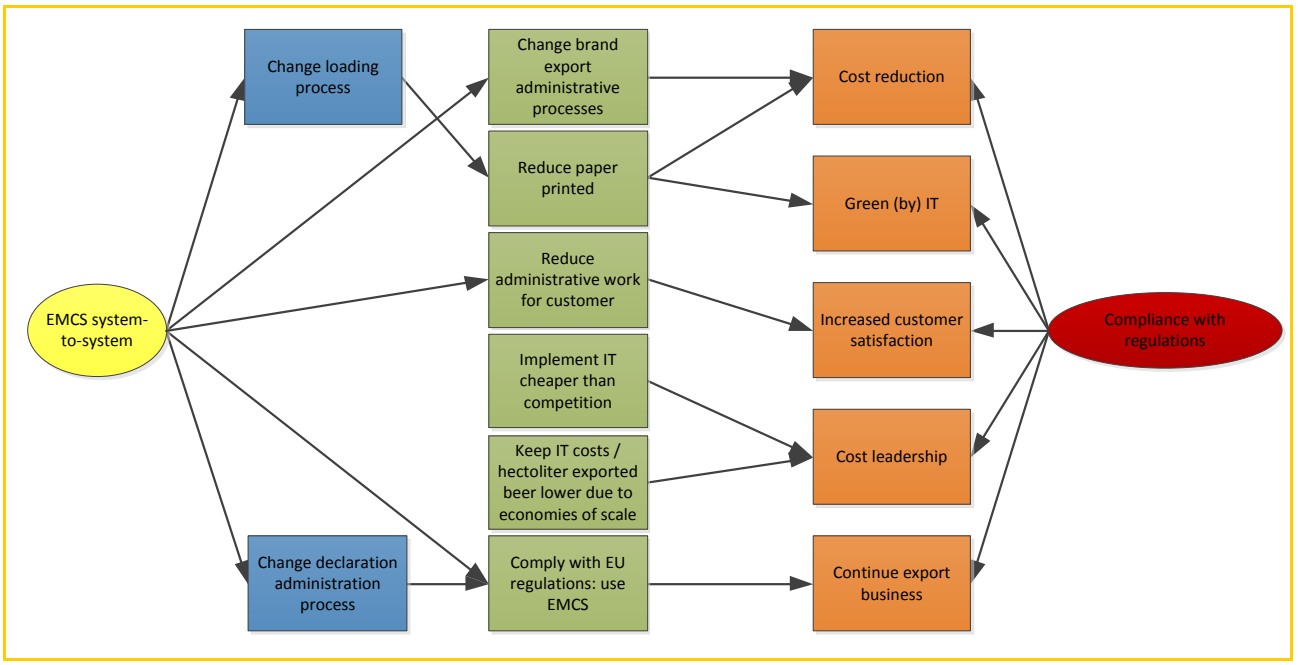


Figure F.1 EMCS Benefits Dependency Network

Appendix F.2 Benefit templates

The following information for every benefit is identified in a Benefits identification workshop.

Table F.1 Details for benefit 'Cost reduction'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect	Time span	Probability
Cost reduction	Manager Customs	Do new things:	Process level: Change loading process and brand export administrative processes	Financial: € 250/year	After ½ year	100%
			People level: Train administrative employees	Quantifiable: 40.000 paper reduction/year		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:	Measurable:		**Frequency**
	Declarant Customs			√		yearly
		Stop doing things: Eliminate the use of paper in certain administrative export processes	Technology level: EMCS S-to-S	Observable: √		

Table F.2 Details for benefit 'Green (by) IT'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
Green (by) IT	Manager Customs	Do new things:	Process level:		Financial:	After ½ year	100%
			Change loading process and brand export administrative processes				
			People level:		Quantifiable:		
			Train administrative employees		200 kg paper = 223 kg CO_2 reduction/year		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
	Declarant Customs				√		yearly
		Stop doing things:	Technology level:		Observable:		
		Eliminate the use of paper in certain administrative export processes	EMCS S-to-S		√		

Table F.3 Details for benefit 'Increased customer satisfaction'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
Increased customer satisfaction	Dutch customs	Do new things:	Process level:		Financial:	After ½ year	100%
			People level:		Quantifiable:		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
	Manager Customs				2		1 / order
		Stop doing things:	Technology level:		Observable:		
		Eliminate administrative work for customers	EMCS S-to-S		√		

Table F.4 Details for benefit 'Cost leadership'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
Cost leadership	Manager Customs	Do new things:	Process level:		Financial:	½ year	80%
			People level:		Quantifiable:		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
	Manager Customs & IT Project Manager	Implement EMCS system-to-system integration cheaper than competition and costs/hectoliter lower due to economies of scale	Close cooperation between IT department, Customs department and the Dutch customs		2		1
		Stop doing things:	Technology level:		Observable:		
					√		

Table F.5 Details for benefit 'Continue export business'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
Continue export business	Manager Customs	Do new things:	Process level:		Financial:	After ½ year	100%
		Use EMCS to comply with EU regulations	Change declaration administration process				
			People level:		Quantifiable:		
			Train administrative employees		# of export containers/yr		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
	Declarant Customs				√		continuous
		Stop doing things:	Technology level:		Observable:		
			EMCS S-to-S		√		

Appendix G Heineken Digital pilot results

Heineken Digital is a Strategic project.

Appendix G.1 Benefits Dependency Network

The following Benefits Dependency Network is drawn in a Benefits identification workshop.

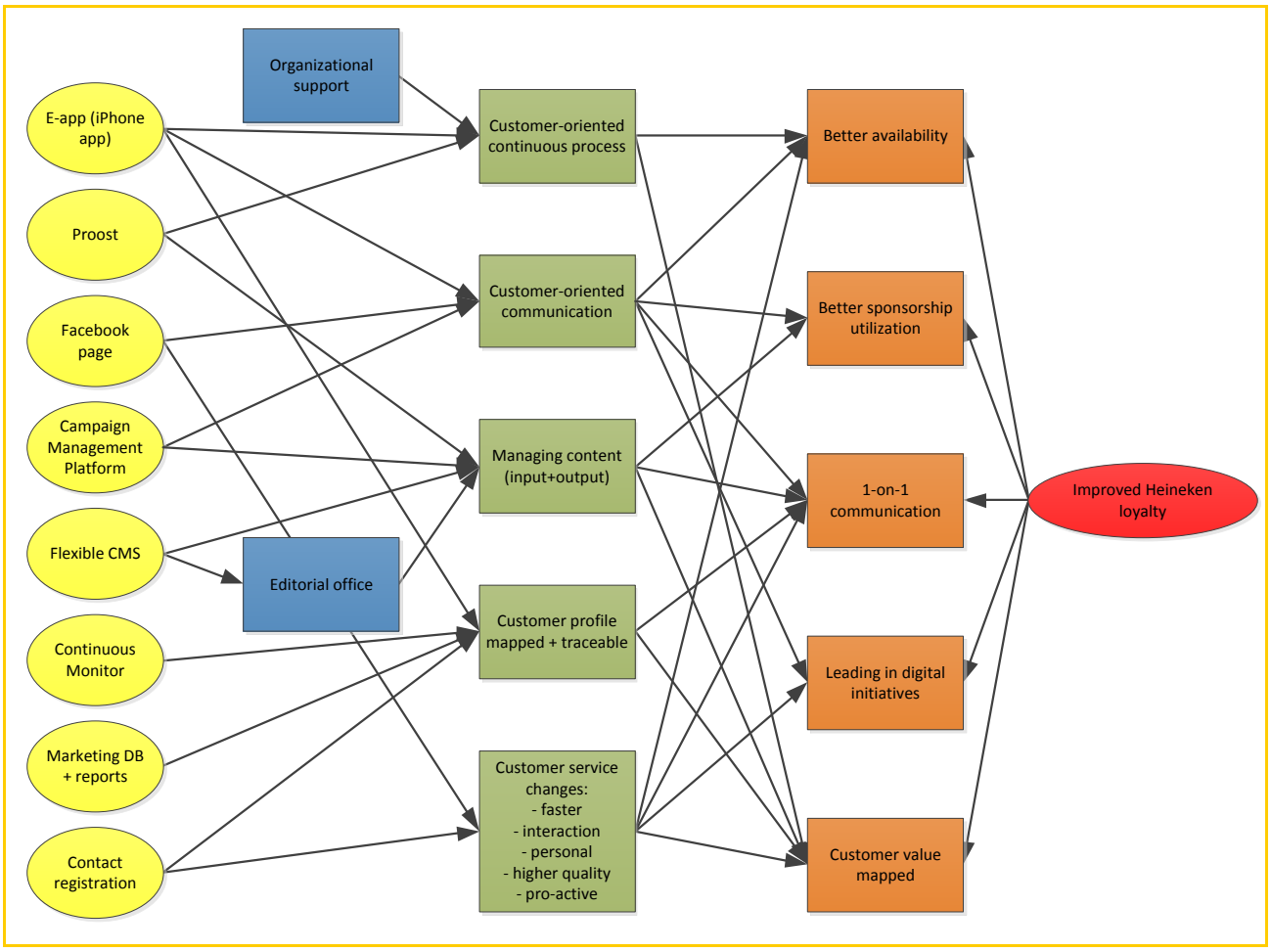


Figure G.1 Heineken Digital Benefits Dependency Network

Appendix G.2 Benefit templates

The following information for every benefit is identified in a Benefits identification workshop.

Table G.1 Details for benefit 'Better availability'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect	Time span	Proba-bility
Better availability	CRM Manager	Do new things:	Process level:	Financial:		
			Change of customer interaction process			
			People level:	Quantifiable:		
			Spread employee availability over time and increase quality	Hours/week available		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:	Measurable:		**Fre-quency**
		Increase Heineken availability for customers	Organize communication around customer demands	√		1
		Stop doing things:	Technology level: E-app, Proost, FB, CMP, Contact registration	Observable: √		

Table G.2 Details for benefit 'Better sponsorship utilization'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
Better sponsorship utilization	Brand Manager Heineken	Do new things:	Process level: Use sponsorship content in right processes		Financial:	1 yr	
			People level: Inform editors		Quantifiable: 10% increase in sponsor tickets used by clients		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
		Use sponsorship content for specific customer segments	Cooperation between customer marketing and sponsorships depts.		√		1 / sponsorship contract
		Stop doing things:	Technology level: Proost, CMS		Observable: √		

Table G.3 Details for benefit '1-on-1 communication'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
1-on-1 communication	CRM Manager & Brand Manager Heineken	Do new things: Communicate with customers 1-on-1	Process level: Customer-oriented process		Financial: 5% conversion increase: 7-8%	1 yr	
			People level: Train customer service employees in pro-active, personal interaction		Quantifiable: √		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
			Organize communication around customer demands		√		1
		Stop doing things:	Technology level: E-app, FB, CMP, Proost, CMS, monitor, marketing DB, contact registration		Observable: √		

Table G.4 Details for benefit 'Leading in digital initiatives'

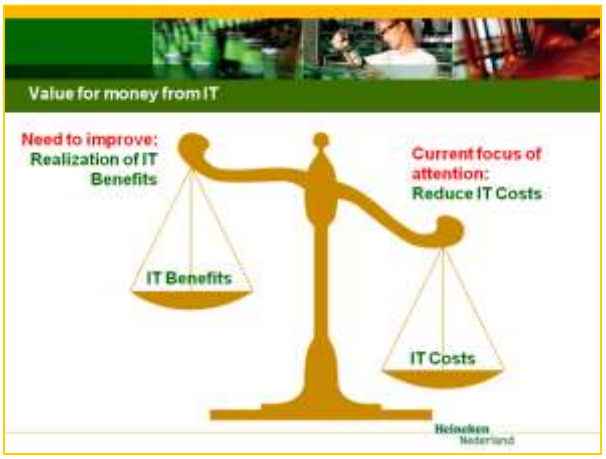
Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
Leading in digital initiatives	Brand Manager Heineken	Do new things: Start new digital initiatives for customer contact	Process level: Continuous innovation		Financial:	1 yr	
			People level: Train employees to innovate; to think of and start with new initiatives		Quantifiable: # FB followers more than a competitor		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
			Organize for innovation		√		1
		Stop doing things:	Technology level: E-app, FB, contact registr.		Observable: √		

Table G.5 Details for benefit 'Customer value mapped'

Benefit	Benefit owner	Classification of change	Required business changes	Measurement of effect		Time span	Probability
Customer value mapped	CRM Manager	Do new things: Document customer profiles, trace customers and map a value to every customer	Process level: Trace customers during all interactions moments		Financial: Customer Lifetime Value		
			People level:		Quantifiable: √		
	Subject matter expert	Do things better, cheaper or faster:	Organization level:		Measurable:		**Frequency**
					√		1
		Stop doing things:	Technology level: Contact registration, Marketing DB+reports, continuous monitor, E-app		Observable: √		

Appendix H Presentation slides for benefits workshop

To guide the workshop process and explain workshop activities, a slide deck with the benefits management method description, with templates and with examples was created. The presentation slides are shown below.



Defining benefits will help us

- Clarify for ourselves what we are trying to achieve
- Understand the project's contribution to resolving local issues and/or improving service delivery and management
- Identify dependencies and deliver necessary changes
- Acknowledge our accountability to stakeholders
- Know what success looks like

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Satisfying the investment objective

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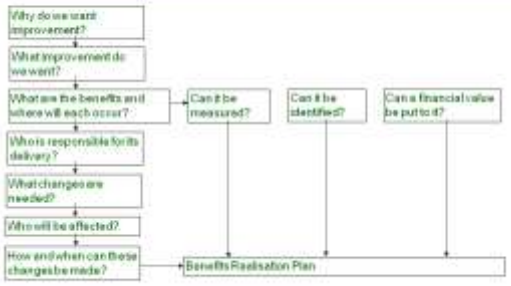
Workshop Structure



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STEP 1 - Investment Objective

- What is the investment objective of the project?
  - What are the drivers and objectives?
  - What are the implications of taking no action?

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STEP 2 - Identify Benefits

- Determine the benefits
- Suggested areas to look for benefits:
  - Cost reduction
  - Productivity improvement
  - Quality improvement
  - Customer service improvement
  - Revenue/profit increase
  - Better resource management
  - Improved decision making and planning
  - Support for business growth
  - Building business innovations
  - Building cost leadership
  - Enables worldwide expansion
  - Generate/sustain competitiveness
  - Shift work focus to core work
  - Increase employee morale and satisfaction

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STEP 3 – Business Changes necessary for Benefits Realization

- *New ways of working that are required to ensure benefits realization*
- To realize each benefit, what type of Business Change is necessary:
  - Do new things,
  - Do things better, cheaper or faster, or
  - Stop doing things
- What is the impact of the Business Change on these levels:
  - Process level,
  - People level,
  - Organization level, and
  - Technology level

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STEP 4 - IT Enablers for Business Changes

- *The IT required to support the realization of identified benefits and to allow the necessary changes to be undertaken*
- Examples:
  - Purchase system
  - Develop software
  - Change existing IT applications
  - Change existing IT infrastructure

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STEP 5 - Enabling changes

- Enabling changes: changes that are
  - Prerequisites for achieving the business changes
  - Essential to effectively use IT enablers within the organization
- Examples:
  - Defining new working practices
  - Redesigning processes
  - Changes to job roles and responsibilities
  - Training in new business skills
  - Training and education in the new system

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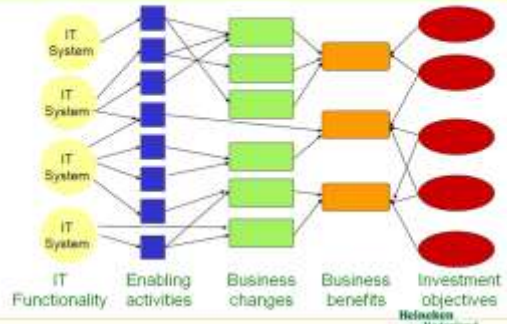
STEP 6 - Benefits Dependency Network



STEP 7 - Measurement and Ownership

- Measuring benefit realization
  1. Observable: yes/no
  2. Measurable: e.g. rating: 1 (low) to 5 (high)
  3. Quantifiably: sufficient evidence for forecast
  4. Financial: economic value
- Benefit Owner: Stakeholder who will gain advantage from a business benefit and will work with the project team to ensure its realization
- Subject Matter Expert: Has the best knowledge of the process

STEP 8 - Time span, Probability, Frequency and Dependency

- Time span: Big bang vs. Incremental implementation
- Probability: Achievement chance (percentage)
- Frequency: One time / Recurring periodically / Recurring at event
- Dependency between benefits:
  - Connect dependency and assign directions
  - Relation: Positive (A supports B) / Negative (A excludes B)
  - Rating: Loose coupling (1) / Tight coupling (2)

Benefit Template

Thank you for your time!

Appendix I CO_2 measurement information

This appendix contains a list of CO_2 factors used in the 'Milieubarometer' (Stimular, 2010). For a few categories with a high CO_2 reduction potential, every measurement unit is translated into a CO_2 equivalent in kilograms. This helps in calculating CO_2 reduction for many activities.

Table I.1 CO_2 equivalent for measurement units of factors with a high reduction potential

CO_2 factor		Unit	CO_2 equivalent	
Electricity				
Purchased electricity	1	kWh	0,490	kg CO_2
Of which green energy	1	kWh	-0,490	kg CO_2
Of which returned	1	kWh	-0,490	kg CO_2
Fuels				
Natural gas for heating	1	m^3	1,825	kg CO_2
Natural gas for production	1	m^3	1,825	kg CO_2
Natural gas for *WKK*	1	m^3	1,825	kg CO_2
Of which green energy	1	m^3	-1,825	kg CO_2
Heat (supplied by third parties)	1	GJ	16,800	kg CO_2
Diesel	1	liter	3,185	kg CO_2
Diesel for heating	1	liter	3,135	kg CO_2
Propane	1	liter	1,530	kg CO_2
Mulch	1	m^3	44,00	kg CO_2
Water and wastewater				
Drinkwater	1	m^3	0,298	kg CO_2
Wastewater	1	VE	39,86	kg CO_2
Emissions				
Solvents	1	kg	8,00	kg CO_2
Refrigerant - R22 (=HCFK)	1	kg	1810	kg CO_2
Refrigerant - R404a	1	kg	3922	kg CO_2
Refrigerant - R507	1	kg	3985	kg CO_2
Refrigerant - R407c	1	kg	1774	kg CO_2
Refrigerant - R410a	1	kg	2088	kg CO_2
Refrigerant – R134a	1	kg	1430	kg CO_2
Mobile machines				
Gasoline	1	liter	2,780	kg CO_2
Diesel	1	liter	3,190	kg CO_2
Red diesel	1	liter	3,190	kg CO_2
LPG	1	liter	1,796	kg CO_2
Commuting				
Public transport	1	kg	0,044	kg CO_2
Scooter and moped	1	kg	0,069	kg CO_2
Motorbike	1	kg	0,159	kg CO_2
Passenger car	1	kg	0,206	kg CO_2
Van	1	kg	0,202	kg CO_2
Business travel				
Public transport	1	km	0,044	kg CO_2
Scooter and moped in km	1	km	0,069	kg CO_2
Scooter and moped (in liters)	1	liter	2,770	kg CO_2
Motorbike in km	1	km	0,159	kg CO_2
Motorbike (in liters) gasoline	1	liter	2,780	kg CO_2
Passenger car in km	1	km	0,206	kg CO_2

Passenger car (in liters) gasoline	1	liter	2,780	kg CO_2
Passenger car (in liters) bio-ethanol	1	liter	0,706	kg CO_2
Passenger car (in liters) diesel	1	liter	3,190	kg CO_2
Passenger car (in liters) biodiesel	1	liter	1,740	kg CO_2
Passenger car (in liters) LPG	1	liter	1,800	kg CO_2
Shared car in km	1	km	0,206	kg CO_2
Van in km	1	km	0,202	kg CO_2
Van (in liters) gasoline	1	liter	2,770	kg CO_2
Van (in liters) bio-ethanol	1	liter	0,706	kg CO_2
Van (in liters) diesel	1	liter	3,180	kg CO_2
Van (in liters) bio-diesel	1	liter	1,740	kg CO_2
Van (in liters) LPG	1	liter	1,830	kg CO_2
Airplane Europe	1	person km	0,419	kg CO_2
Airplane global	1	person km	0,244	kg CO_2
Helicopter (in liters) kerosene	1	liter	4,670	kg CO_2
Freight				
Van in km	1	km	0,202	kg CO_2
Van (in liters) gasoline	1	liter	2,770	kg CO_2
Van (in liters) bio-ethanol	1	liter	0,706	kg CO_2
Van (in liters) diesel	1	liter	3,180	kg CO_2
Van (in liters) biodiesel	1	liter	1,740	kg CO_2
Van (in liters) LPG	1	liter	1,830	kg CO_2
Small truck in km	1	km	0,502	kg CO_2
Medium truck in km	1	km	0,768	kg CO_2
Large truck in km	1	km	1,010	kg CO_2
Truck (in liters) diesel	1	liter	3,140	kg CO_2
Truck Euro I (in liters) diesel	1	liter	3,220	kg CO_2
Truck Euro II (in liters) diesel	1	liter	3,220	kg CO_2
Truck Euro III (in liters) diesel	1	liter	3,220	kg CO_2
Truck Euro IV (in liters) diesel	1	liter	3,220	kg CO_2
Truck Euro V (in liters) diesel	1	liter	3,220	kg CO_2
Truck Euro VI (in liters) diesel	1	liter	3,220	kg CO_2
Truck (in liters) biodiesel	1	liter	1,740	kg CO_2
Truck (in liters) LPG/CNG	1	liter	1,850	kg CO_2
Contracted road (per ton km)	1	ton km	0,155	kg CO_2
Contracted road (per container km)	1	container km	0,984	kg CO_2
Contracted road (per pallet location km)	1	pallet location km	0,055	kg CO_2
Contracted road (per package)	1	package	0,384	kg CO_2
Courier with van	1	freight km	0,404	kg CO_2
Courier with truck	1	freight km	1,536	kg CO_2
Inland (bulk)	1	ton km	0,026	kg CO_2
Inland (containers)	1	container km	0,489	kg CO_2
Maritime (bulk)	1	ton km	0,011	kg CO_2
Maritime (containers)	1	container km	0,171	kg CO_2
Freight train (containers)	1	container km	0,398	kg CO_2
Train (ton km)	1	ton km	0,026	kg CO_2
Airplane	1	ton km	1,040	kg CO_2
Office paper				
Regular (wood free) paper	1	kg	1,186	kg CO_2
Recycled paper	1	kg	1,116	kg CO_2
Paper with eco label	1	kg	0,883	kg CO_2