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# Useful Business Cases: Value Creation in IS Projects

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## Abstract

*Business cases have become popular as part of managing value creation in IS projects. Nevertheless, business cases are often poorly linked to value creation activities and organizations struggle to develop business cases that are useful and express more than simple cost savings. This action research study seeks to improve the usefulness of business cases in IS projects. We used collaborative action research with Danish municipalities to improve their practices when developing and using business cases and to change their perceptions of what constitutes a good business case that is useful during implementation and value creation. This article presents lessons learned from our action research, lessons that we incorporated into a business case method and subsequently evaluated with IS managers. There are three lessons on: (1) improving the content of business cases, (2) how to develop business cases, and (3) the use of business cases in subsequent value creation. These lessons summarize our findings and the contributions are that we in the business case method propose to: (1) include minimal contents, (2) develop social commitment, and (3) structure for dynamic use during value creation. We discuss the lessons and contributions related to research on IS business cases and value creation.*

**Keywords**: business cases, action research, IS management, IS value, IS benefits management, project management.

# 1. Introduction

Creating business value with information systems (IS) is a central topic in IS research (Kohli & Grover, 2008; Schryen, 2013). The topic covers challenges related to IS justification and funding (Peffers & Dos Santos, 2013), operational alignment practices (Vermerris *et al*, 2014), and executives' perception of what IS business value is (Tallon, 2014). The substantial IS literature on this topic presents an ambiguous and fuzzy IS value construct with a creation process that is a grey box (Schryen, 2013). Business executives and researchers continue to question the value of IS investment (Kohli & Grover, 2008) and some researchers accordingly seek to quantify the substantial amount of IS-related intangible assets in firms (Saunders & Brynjolfsson, 2016). Other researchers emphasize the pluralistic, formative, and social dimensions of IS value. This line of research indicates the importance of managerial action in creating value from IS while addressing the lack of clarity in goals and expected values of IS investments – particularly in public organizations (Frisk *et al*, 2014; Frisk *et al*, 2015; Rose *et al*, 2015b). This paper extends the latter line of research by focusing on the operational synthesis of value creation with business cases in IS projects.

The IS business case is a central element of explaining value creation and in decision-making on the level of individual projects (Ward & Daniel, 2006). Business cases are commonly used in both public and private organizations (Ward *et al*, 2008). Investigation of success factors for IS in public organizations and the reasoning behind business cases reveals that a robust empirical base, particularly for business case strategies in public organizations, would provide public managers with a more informed roadmap for their efforts (Gil-García & Pardo, 2005).

Despite the importance of IS business cases, empirical investigations of their development, contents, and use remain scarce (Berghout & Tan, 2013; Maes *et al*, 2014). Maes *et al* (2014) call for research on understanding how different stakeholders can use a business case throughout the entire investment life cycle. The challenges facing chief information officers (CIOs) and IS project managers when wanting to formulate business cases are staggering in terms of: how they should go about explaining IS investment (Frisk *et al*, 2015), how value propositions change over time (Peffers & Dos Santos, 2013), and how different values associate with different value systems (Rose *et al*, 2015b). In this paper, we seek to address these challenges from the viewpoint of the stakeholders that are responsible for IS value creation – in our case with a particular focus on stakeholders in public organizations.

To address the concerns of explanation, change, and diversity pertaining to value in IS business cases, we adopt an action research methodology (Baskerville & Wood-Harper, 1996; Baskerville & Wood-Harper, 1998; McKay & Marshall, 2001; Davison *et al*, 2004). Action research affords investigation of

organizational processes with particular emphasis on how practitioners can and should take action. Our contribution is on the usefulness of business cases where an integrated response to the three concerns is more effective than addressing the concerns individually. The usefulness refers to the support of action that is effective for creating value in practice in IS projects with ambiguous values.

We report an action research study as collaborative practice research (Mathiassen, 2002) on IS business cases in Danish municipalities. In this study, we collaborated with a group of municipal CIOs and IS project managers. The collaborative research led to a joint knowledge interest in the research question:

*How can we improve the usefulness of business cases for value creation in IS projects?*

With collaborative practice research, usefulness addresses on the one hand the practitioners' concern for situated use in public organizations and on the other hand the research concern for empirically based synthesis of IS research on business cases (Ward *et al*, 2008; Maes *et al*, 2014) and value creation (Ward & Daniel, 2006; Rose *et al*, 2015b).

We take a starting point in extant research literature on IS value creation and on IS business cases that forms the theoretical framing we employ throughout the action research. In the action research activities, we utilized the framing in the problem-solving with three municipalities. The action research and the lessons learned were systematically documented in the midst of the process. This process documentation forms the empirical basis for the findings. The action research led iteratively to lessons learned on how the business cases could be developed and how stakeholders could be involved. It also led to the realization of the dynamic character of the business cases and how it can be used in IS projects. These findings are then discussed as contributions to the closing of the gap between research and practice in value creation in IS projects by focusing on business cases.

# 2. Related Research

We based the theoretical framing of the action research study on the IS value and IS business case literature. The IS value literature provided insights into the fundamental assumptions and understandings pertaining to value creation with IS. The business case literature provided insights into how practitioners may operationalize the creation of value in IS projects.

## 2.1 IS Value Creation

The concept of value has multiple dimensions that make it difficult to work with in practice and conceptualize as a construct for IS research (Rose & Persson, 2012; Rose *et al*, 2015b). In the substantial body of IS literature on value, the discussion frays into many lines of thought in various directions that

make the value construct ambiguous and fuzzy (Schryen, 2013). In addition to construct ambiguity, Schryen (2013) points to a neglected disaggregation of IS investments and that the value creation process is a grey box. In the following, we present the literature on IS value according to three dimensions that reflect key differences in the fundamental assumptions and understandings of IS value. Furthermore, we present literature on the value creation process based on benefits management research, which is a prominent approach to support value creation from IS investments (Ward & Daniel, 2006).

Schryen states that "*IS business value is the impact of investments in particular IS assets on the multidimensional performance and capabilities of economic entities at various levels, complemented by the ultimate meaning of performance in the economic environment*" (Schryen, 2013, p. 141). Value in this definition and other lines of research is often limited to an economic or monetary view (Kohli & Grover, 2008; Yassaee & Mettler, 2015), but in public organizations particularly, a broader pluralistic view on value is needed (Frisk *et al*, 2014). The research on IS in public organizations proposes numerous conceptualizations of value that include less tangible and measurable attributes (Bannister, 2002; Persson & Goldkuhl, 2010; Bannister & Connolly, 2014; Rose *et al*, 2015b). For example, Rose *et al* (2015b) distinguish between the fundamental value positions of professionalism, efficiency, service, and engagement for e-government. These distinctive value positions are each legitimate ends in view that are tied to assumptions about how IS benefits good public administration. However, such value positions are not always in harmony with each other, which contributes to a value complexity that is highly challenging for IS management in public organizations (Rose *et al*, 2015b). In many cases, the efficiency ideal dominates the managerial discourse, which signifies that the monetary view is also central to public organizations (Rose *et al*, 2015a). Thus, the dimension of monetary and pluralistic views on IS value is important to understand the construct, yet also highly challenging for practitioners and researchers to navigate.

The purpose of assessing IS value can broadly be described as summative or formative (Remenyi & Sherwood-Smith, 1999; Frisk *et al*, 2014). Summative accounts serve to form the basis for evaluating experience, impacts, and outcomes in terms of merit, worth, and significance (for example to help determine the resulting outcomes of an IS project). The majority of research on IS value adopts this purpose with a focus on *ex post* measurement (Yassaee & Mettler, 2015). Formative accounts try to establish a basis for future action (for instance by prioritizing IS projects competing for funding). In the latter, value can be understood as broad guides to action (Rose & Persson, 2012) that calls for justification dynamism, which moves from static to continuous justification of IS funding (Peffers & Dos Santos, 2013). Frisk *et al* (2015) argue for a form of dynamism enabling the contextual construction of the value constructs as value dials for implicit measurement. Their research underlines the importance of focusing

on and operationalizing the formative purpose of working with IS value. Thus, to understand the IS value construct in its operationalization by researchers and practitioners, the dimension of summative and formative purpose is important.

The manifestation of IS value concerns both its artefact and social embodiment. The IS literature shows that information technology is valuable (Melville *et al*, 2004) and that value can be understood as being generated by its design and implementation (Yassaee & Mettler, 2015). However, there is an increasing focus on the inherent inseparability between the technical and the social in the genre of research coined as sociomateriality (Orlikowski & Scott, 2008). IS value may be understood in terms of organizational change that accompanies its introduction, rather than stemming directly from the possession of information technology (Doherty *et al*, 2012). Executives' collective understanding and decisions pertaining to IS value are based on a distributed sense-making process (Tallon, 2014), which is critical to the social manifestation of IS value. In public organizations, social manifestations of IS value are partly to do with individual managers' experience and beliefs, and partly a reflection of organizational values projected down through the hierarchy by ministers, politicians, and senior civil servants, and up through the hierarchy by street-level administrators in daily contact with citizens (Rose & Persson, 2012). Frisk *et al* (2015) note that the fluid concept of public value may indirectly influence IS decision-making via internal stakeholders' perceptions of the value. Thus, to understand IS value we need to consider the dimension of its artefact and social manifestation.

Figure 1 summarizes the three dimensions of IS value in terms of its view, purpose, and manifestation. Each of the three dimensions reflects fundamental assumptions and understandings of IS value that illustrate the diversity of perspectives in the IS literature. The purpose of this paper is not to make a theoretical integration of IS value research but rather to investigate how practitioners may navigate along these dimensions in their work with business cases, and how that in turn influences a business case method and the underlying theory. Specifically, we focus on improving the usefulness of business cases pertaining to the right-hand side of Figure 1.

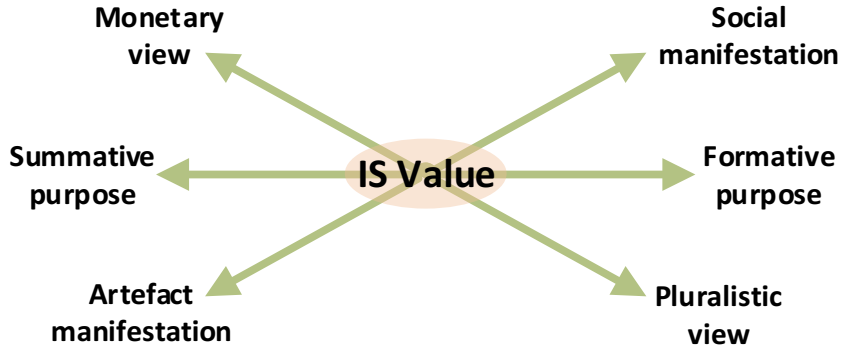

**Figure 1: Three dimensions of IS value.**

Understanding IS value is necessary but not sufficient for working with the improvement of value creation. We therefore turn to benefits management, which is a prominent approach to support value creation from IS investments (Ward & Daniel, 2006). IS benefits management is the process of organizing and managing, such that the potential benefits arising from the use of information technology are actually realized (Ward *et al*, 1996; Ward & Elvin, 1999). The approach recognizes that the benefits of IS typically come from the organizational change that accompanies its introduction, rather than stemming directly from the possession of IS (Doherty *et al*, 2012) – a perspective that evolved from socio-technical approaches to systems design (Doherty, 2014). While potentially highly beneficial to IS management practice, the structured methods for benefits management have very low adoption rates (Ashurst *et al*, 2008; Hesselmann & Kunal, 2014). Benefits management has strongly practical aspects (Doherty & Ashurst, 2012) and requires appropriate organizational capabilities (Ashurst & Hodges, 2010).

Benefits management has received particular interest in project management research (Badewi, 2016; Chih & Zwikael, 2015; Coombs, 2015; Marnewick, 2016; Serra & Kunc, 2015). A survey of IS professionals on the importance of respectively project management and benefits management suggests that assigning the responsibility for obtaining benefits is the most critical factor in project investment success, while the business case is the least (Badewi, 2016). However, this study emphasizes the need for research to determine the critical items in project benefits governance contracts (business case, benefits profile, and project charter) to realize the project benefits effectively and efficiently. Hesselmann and Kunal (2014) also call for more applied research, such as action research, in their review of benefits management research.

Municipalities are public organizations facing significant challenges in IS benefits management. However, the available methods are regarded as too complex and difficult for practitioners to use (Paivarinta *et al*, 2007). Furthermore, the political contexts of public organizations involve a large number of stakeholders and multiple tasks and considerations for managing IS (Bannister, 2002; Grimsley & Meehan, 2007). IS benefits management can be particularly difficult in public organizations because of the high "*focus on accountability, openness, representativeness, and equity, more external and vertical linkages, incremental rather than holistic planning due to constraints in budgeting and purchasing, extreme risk aversion due to potentially more damaging consequences of errors from risky technologies, and divided authority over IT decisions due to legal, civil services, and political constraints*" (Chircu & Lee, 2005, p. 13). Municipal organizations may furthermore each differ in how they frame benefits

management concerning the fundamental aspects of benefits, activities, conditions, continuity, and roles (Nielsen *et al*, 2012).

Public organizations provide a particularly interesting research setting for investigating the operationalization of IS value creation. The IS projects in these organizations demand the incorporation of both the monetary and pluralistic view of value. Their purpose of working with IS value is both summative and formative before, during, and after project completion. They have to assess and communicate value as an attribute to a distinct IS artefact but also as a social manifestation that reflects a diverse group of stakeholders. We propose that value creation in IS projects implies that these three dimensions are operationalized (however not necessarily explicitly) without neglecting any of their six end points (Figure 1). The business case can play a central role in IS value creation and we take its usefulness to be dependent on how well it captures all of the six end points in Figure 1. In the following we review the extant research on IS business cases.

## 2.2 IS Business Cases

In this study, the concept of a 'business case' refers to an artefact in the form of a document specifying the main rationale behind the expected value and cost of an IS investment for the adopting organization. We adopt this definition from Danish central government, municipal practices, and previous research on business cases (Ward *et al*, 2008; Eckartz *et al*, 2009; Eckartz *et al*, 2010).

The application of business cases is useful in a broad range of investment contexts (Maes *et al*, 2014), but empirical investigations of IS business case methods are scarce (Berghout & Tan, 2013). Previous investigations of IS business cases are in the context of cross-organizational enterprise systems (Eckartz *et al*, 2009; Eckartz *et al*, 2010), digital library investment (Cervone, 2008), evaluation of investment in non-profit organizations (Braaksma *et al*, 2006), the Australian Federal Government (Kim *et al*, 2015), and strategic IS investment decisions (Ross & Beath, 2002). In municipal contexts, investigators call for longitudinal research of how richness affects project outcomes and how different configurations of business case elements may create synergetic effects (Berghout & Tan, 2013). In general, the research is limited concerning how configurations of the content, development, and use of business cases may improve value creation from IS projects in different organizational contexts.

The comprehensiveness of business cases significantly affects the success of IS investments (Ward *et al*, 2008). In a content analysis of IS business cases by Dutch municipalities, Berghout and Tan (2013) found that the more elaborate IS business cases have higher initial cost estimates, and they suggest this improves the investment decisions. Most scholars agree that a business case must include information on the

investment's vision and objectives, the changes required to realize the scope, the anticipated benefits and costs, and associated risks (Maes *et al*, 2014). Maes *et al* (2014) summarize an extensive amount of additional content elements but do not question the extent to which more continues to be better or how specific contexts reflect particular content needs.

The development of successful IS business cases requires commitment from business managers (Ward *et al*, 2008). Assignment of responsibilities and accountabilities in a business case may increase individuals' commitment (Franken *et al*, 2009; Maes *et al*, 2014). While multiple stakeholders can be involved in business case development (Fonstad & Robertson, 2006; De Haes *et al*, 2011), Maes *et al* (2014) call for further research on stakeholders' roles and impact because they may enrich the amount of information with different viewpoints.

The development of a business case to support the IS investment decision and evaluation (Ward *et al*, 2008) can be followed and elaborated by a benefit management plan (Ward & Daniel, 2006). However, "*it is not just about developing a business case*" (Maes *et al*, 2014, p. 55). Continuous usage may facilitate higher success rates of IS investments (Al-Mudimigh *et al*, 2001; Krell & Matook, 2009; Altinkemer *et al*, 2011). The business case is a useful instrument in IS implementation (Gattiker & Goodhue, 2005; Law & Ngai, 2007) and it can be fundamental to benefits realization (Curley, 2006). Maes *et al* (2014) call for further research to understand the use of a business case throughout the entire life cycle of an investment.

The most prominently published approach to developing a business case in the IS literature is by Ward *et al* (2008) and offsets in benefits management (Ward & Daniel, 2006). The approach extends Sarkis and Liles' (1995) high-level business case process based on research of both private and public organizations (Ward *et al*, 2008; Maes *et al*, 2014). The approach features six steps identifying the: (1) business drivers and investment objectives, (2) benefits, measures, and owners, (3) structure of benefits, (4) organizational changes enabling benefits, (5) explicit value of each benefit, and (6) costs and risks. The approach differs from other business case approaches in the following ways (Ward *et al*, 2008):

- Non-financial benefits are also recognized.
- Measures are identified for all benefits, including subjective or qualitative benefits.
- Evidence is sought for the size of the benefits included.
- An owner is identified for each benefit.
- Benefits are explicitly linked to both the IS and the business changes that are required to deliver them.
- Owners are identified to ensure the business changes are achieved.

These characteristics are appropriate for IS benefits management in municipalities for several reasons. The recognition of non-financial benefits corresponds well with public sector organizations' non-profit nature and their political agenda (Dufner *et al*, 2002). Public sector organizations are likely to estimate the potential value of an IS investment by looking at both its economic value and its political value (Chircu & Lee, 2003). The measuring of benefits supports informed and documented agreement between IS benefits management on the one hand and on the other hand the parts of the affected public organization. These measures may also facilitate later benefits evaluation. Linking benefits to both IS and business changes is highly relevant in addressing the difficulties of change in public sector organizations (Fernandez & Rainey, 2006; Reinwald & Kraemmergaard, 2012). Finally, the ownership of benefits and business change corresponds well with the frequently divided authority over IS decisions (Chircu & Lee, 2005), the large number of influential stakeholders in public sector organizations (Bannister, 2002) and research on successful benefits management practice for IS projects (Badewi, 2016).

# 3. The Action Research Approach

The action research approach was designed specifically to match the research question and the needs of the client organizations (Section 3.1), and this design was then executed in a research process based on a cyclical model also involving data collection and analysis (Section 3.2).

## 3.1 Research Design

Our action research effort was part of a larger research project in collaboration with Danish municipalities. The purpose of this larger research project was to improve IS management in these municipalities (Rose *et al*, 2012). Several municipalities, i.e., city administrations, were invited to participate and an agreement between ten municipalities and the researchers was formulated before the project started. The agreement specified the purpose of the collaboration and the partners' interests in both knowledge and change through action as well as the main activities.

Action research is an appropriate research approach for such a research undertaking and when the research question addresses organizational processes and how practitioners take action and improve their actions (Baskerville & Wood-Harper, 1996; Baskerville & Wood-Harper, 1998; McKay & Marshall, 2001; Davison *et al*, 2004). Our research design was specifically based on the action research approach Collaborative Practice Research (CPR) (Mathiassen, 2002), which serves as a general framing of the research design and activities. CPR offers a research methodology assisting us in connecting the need to

understand the current IS management practices with the need to improve the IS management in the client organizations.

The cyclical process of CPR has been elaborated (Iversen *et al*, 2004) and it encompasses a more detailed process model than that of Canonical Action Research (CAR) (Susman & Evered, 1978; Davison *et al*, 2004), though the core cyclical activities are very similar. The cyclical process model is adapted from (Iversen *et al,* 2004) and illustrated in Figure 2.

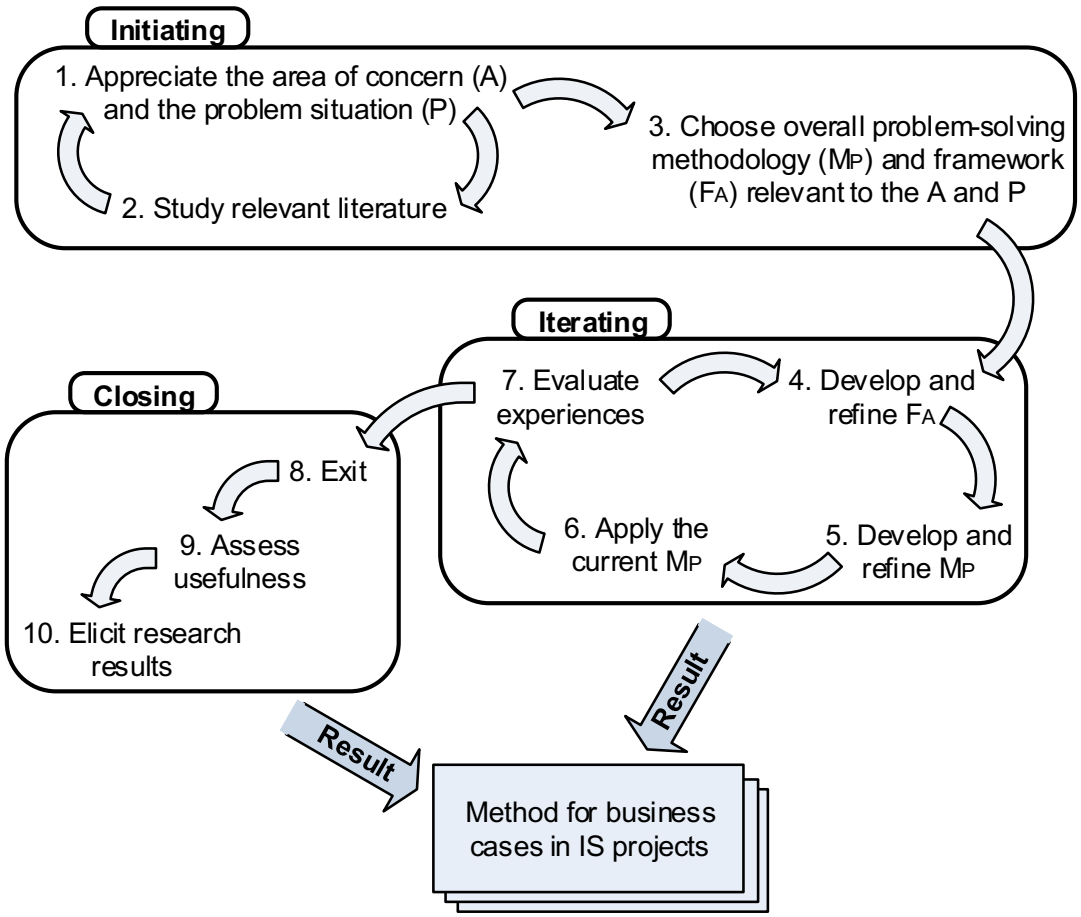


**Figure 2: The action research process.**

Figure 2 is a cyclical process model that operationalizes the dual knowledge interests (McKay & Marshall, 2001) and links the problem-solving methodology ($M_P$) to the framework ($F_A$). The iterating activities (4–7 in Figure 2) gradually lead to a refined $M_P$ (that utilizes $F_A$) that is (hopefully) useful in addressing P and A. This cyclical process model is appropriate, as the joint knowledge interest was to improve the usefulness of business cases for practitioners in the municipalities. An initial $F_A$ was found in the literature on IS value creation (cf. Section 2.1) and IS business cases (cf. Section 2.2), and an initial $M_P$ was found in the business case method by Ward *et al* (2008). The iterating activities are driven by the

desire to refine both the business case method ($M_P$) and the understanding of IS value ($F_A$). It was a joint purpose for practitioners and researchers to test and evaluate the current version of the business case method (Activities 6 and 7), and that was always done by applying it in the development of a new business case that a municipality was working on. Hence, the evaluation was in a real-world setting and never just an exercise or a lab experiment.

The action research design complies with the principles of CAR (Davison *et al*, 2004) in the following way:

- A written *researcher-client agreement* (CAR Principle 1) was formulated prior to starting the project. A joint steering committee was formed and it met regularly to govern the collaboration. The agreement and the steering committee also addressed roles and responsibilities explicitly as well as objectives and evaluation. The researchers were given the responsibility for data collection and analysis (CAR Criterion 1f) (see below). The project also involved consultants with extensive knowledge of the use of IS in municipalities, and they participated as commentators in the several workshops.
- The *cyclical process model* (CAR Principle 2) described above includes independent diagnosis (Activities 1 and 7) leading to planned actions (Activities 4–6) followed by reflection on the actions (Activity 7). The iterating activities were concluded and eventually a decision not to proceed further (Activity 8) was reached.
- *Theory* played a crucial role (CAR Principle 3) in the form of $F_A$ and $M_P$ (cf. Section 2). A distinction between focal theories and instrumental theories (Davison *et al*, 2012) was not relevant as all theories applied were instrumental or selected because they were relevant to understanding the area of concern, and hence labelled $F_A$. A distinction between theories and frameworks relevant to the area of concern, $F_A$, and independent of the area of concern, $F_I$ (Mathiassen *et al* 2012), was not necessary for the same reason.
- *Change through action* (CAR Principle 4) dominated the specific activity of applying the current $M_P$ (Activity 7). The problem situation (P) was diagnosed jointly with the practitioners from the municipalities and the severity of the problems motivated the interest in changing the situation (Activity 1 and CAR Criteria 4a–4b). The actions were planned based on the diagnoses and taken jointly (Activity 6 and CAR Criteria 4c–4d), while the refinement of the $F_A$ and $M_P$ was left to the researchers (Activities 4 and 5) but immediately applied (Activity 6) and evaluated (Activity 7).

- The *learning through reflection* (CAR Principle 5) came explicitly yet gradually through the initiating activities (Activities 1 and 2), the recurring evaluation of experience (Activity 7), the closing activities of the final assessment of the usefulness of the business case method ($M_P$) and its embedded understanding of IS value ($F_A$) (Activity 9), and the elicitation of the research results (Activity 10). The evaluation of experience (Activity 7) and the assessment of usefulness (Activity 9), in particular, were joint activities between the researchers and the practitioners from the municipalities (CAR Criterion 5b), and regular reports from the research were given at workshops with other municipalities and to the steering committee (CAR Criteria 5a and 5c). An explication of the results and their implications (CAR Criteria 5d–5g) follows in Sections 4 and 5.

The research design can be further characterized by describing the research style employed (Mathiassen *et al*, 2012). The premise style of this research is practical and not theoretical as we have investigated how practitioners in municipalities work with value creation and business cases. It is difficult for municipal practitioners to address IS values and their complexities. The inference style is inductive and not deductive as the arguments are based on data and evidence from the problem-solving. We worked with value creation and business cases and then subsequently related more directly to a better understanding of the concepts and propositions from the research literature that gradually became embedded into the $F_A$ and hence utilized in the $M_{PS}$. Finally, the contribution style we are seeking given our research question is a contribution to a problem-solving method that must be useful for practitioners in their dealings with value creation and business cases.

In addition to the more general research design issue, a considerable effort went into designing the data collection and analysis and the reflexive documentation of the problem-solving and the usefulness of the business case approach. These efforts relate to CAR Criterion 4f and to the CPR criterion of *documentation* (from Iversen *et al* (2004) and elaborated in (Nielsen, 2007). The criterion of documentation requires explication of the attainment of data concerning the change processes and the representation of context and the temporal nature of the change. Thus, we used several data collection techniques:

- In-depth qualitative interviews with practitioners as part of the diagnosis (Patton, 2002),
- A specific questionnaire-based survey (Bryman, 2012),
- Researchers' study protocol detailing the research design (inspired by Yin (2003)),
- Researchers' individual research diaries (Jepsen *et al*, 1989),
- Audio recordings of workshops between researchers and practitioners,

- Audio recordings of researchers' debriefings following each workshop (Spall, 1998).

We integrated the analysis of all collected data into the action research process, in particular through the debriefing meetings following each workshop. We analysed the municipalities' business cases and related documents and we then presented and validated the results at a workshop. This integration of data analyses throughout the action research process allowed continuous feedback in our collaboration with the practitioners and as we presented our results. The documentation in the form of debriefings and research diaries also allowed later critical revisits to our analyses and decisions.

## 3.2 Research Activities

The research activities follow the cyclical process model defined above and illustrated in Figure 2.

**Initiating:** Three central IS management problems were diagnosed in detail using qualitative interviewing with both general managers and CIOs in 10 municipalities that were subsequently analysed and coded for specific challenges and a specific questionnaire-based survey of all municipalities. Based on one of the central problems, the research project that we report from here focused on how to create value with IS in the municipalities. The research project established a working group for this particular problem consisting of representatives from four municipalities (ranging from 4,000 to 30,000 employees) and two consultancy firms and action researchers from a university. The working group identified business cases as a key concern in the municipalities' IS management. This appreciation of this particular problem situation was the first step in the action research process.

Based on a detailed diagnosis of the problem situation, the working group initiated improvement activities for the municipalities' IS business cases and benefits management (Nielsen & Persson, 2016). As researchers, we considered the issues of: (1) making IS benefits management more accessible for practitioners (Paivarinta *et al*, 2007; Hesselmann & Kunal, 2014), (2) how practitioners should take action in the e-government development process (Heeks & Bailur, 2007), and (3) the limited empirical knowledge on the content, development, and use of IS business cases in practice (Berghout & Tan, 2013; Maes *et al*, 2014). We initially adapted a business case method based on the approach by Ward *et al* (2008). The main reasons for this were its operational qualities, its appreciation by the practitioners, and its previous empirical backing.

The initiation activities were conducted in the first two workshops in the working group (see Table 1).

**Iterating:** There were three iterations throughout Activities 4–7. The progress from Iteration 1 to 2 happened after two applications of the first version of the business case method. The evaluation of this led

to the realization of a few method features that were useful and also the realization that the conceptualizations of value had to be elaborated.

In Iteration 2, we simplified the business case method, but expanded on how to conceptualize values. This second version of the method was applied at the third municipality and then evaluated.

Iteration 3 introduced the business case method and how it operationalized values should be understood in the larger context of benefits realization. This understanding first led to extending the framework with state-of-the-art literature on benefits as values and on benefits management. It then led to investigating current benefits realization practices in two of the municipalities and then refining the business case method to support this larger set of activities. Iteration 3 saw the emergence of an understanding of business cases as much more dynamic and subject to change from inception of the IS project to follow-up. In particular, the insight that a business case should be a key document until benefits have been realized long after the closing of the IS project was useful.

**Closing:** We closed the action research process when the working group assessed the business case method's usefulness in a benefits realization context. The working group then decided to elicit the method as a handbook available to other municipalities. We published the first version in 2011 and a second version in 2013.

The collaborative parts of the action research process involved 12 workshops, summarized in Table 1, which were all organized at the university or at a municipality.

**Table 1: Workshops**

| # | Activities | Workshop | Duration | Participants |
|---|---|---|---|---|
| 1 | Initiating | The research project organization and improvement focus | 5 h | 4 CIOs / Project managers (3 municipalities), 2 Consultants, 5 Researchers |
| 2 | | Business case models and experiences | 5 h | 4 CIOs / Project managers (2 municipalities), 2 Consultants, 6 Researchers |
| 3 | Iteration 1 | The business case content, development and context | 5 h | 6 CIOs / Project managers (4 municipalities), 2 Consultants, 4 Researchers |
| 4 | | Evaluation of business case method at municipality 1 | 2 h | 2 CIOs / Project managers, 2 Researchers |
| 5 | | Evaluation of business case method at municipality 2 | 2.5 h | 2 CIOs / Project managers, 2 Researchers |
| 6 | Iteration 2 | Further development of the new business case method | 5 h | 5 CIOs / Project managers (4 municipalities), 1 Consultant, 5 Researchers |
| 7 | | Evaluation of business case method at municipality 3 | 3 h | 3 CIOs / Project managers, 2 Researchers |

| | | | | |
|---|---|---|---|---|
| 8 | Iteration 3 | Benefits realization based on a business case | 5 h | 2 CIOs / Project managers (2 municipalities),<br>2 Consultants,<br>4 Researchers |
| 9 | | Challenges in benefits realization at municipality 1 | 2.5 h | 1 Vice CEO,<br>2 CIOs / Project managers,<br>3 Researchers |
| 10 | | Challenges in benefits realization at municipality 2 | 3 h | 1 Vice CEO,<br>1 Citizen service manager,<br>3 CIOs / Project managers,<br>3 Researchers |
| 11 | Closing | Supporting benefits realization at municipality 2 | 3 h | 1 Citizen service manager,<br>3 CIOs / Project managers,<br>3 Researchers |
| 12 | | Supporting benefits realization at municipality 1 | 2 h | 2 CIOs / Project managers,<br>3 Researchers |

# 4. Results

In the following, we present the results of the problem-solving cycle in terms of the problem formulation and improvement activities for IS business case practices in Danish municipalities. Following these two sections, we present the results of the research cycle as lessons learned from these activities.

## 4.1 Problem Formulation

The first workshops for problem diagnosis showed different forms and purposes of a business case across municipalities and even within a single municipality. While the literature claims that the main purpose of developing an IS business case is to obtain funding approval for the financial investment (Ward *et al*, 2008), this was not always the dominant issue in the municipalities. The municipalities' investment decisions were in some cases already made and they developed a business case post hoc to justify and promote the IS investment decision internally. IS project managers did in some cases request business cases because the project management method they followed required it, e.g., Prince2 (Office of Government Commerce, 2002). Central government also provided business cases that could serve either as the investment decision or as a basis for the development of a new business case. However, often the IS managers did not recognize the benefits (or their size) stated in these externally developed business cases.

The initial problem diagnosis further showed a concern among the CIOs that the very extensive business case method of central government was much too inclusive, complex, and expensive to apply. The CIOs had trouble presenting business cases to busy municipal managers where time and effort did not allow for comprehensive documents. These managers all belong to the same organization and thus shared significant knowledge already, with no need to document further in a business case. More importantly, the level of trust between the managers allowed binding agreements without extensive formalization of

contracts or business cases. Finally, the size of the IS investments in the municipalities did not justify extensive work on a business case, because it would be disproportionate compared to the actual investment.

The three municipalities' different methods for developing a business case had 12, 14, and 15 elements or steps while the central government's method had 40. We did a comparison of the central government's method with those of the three municipalities and presented the results at the second workshop. Our comparison identified an overlap of six elements: (1) Business background, (2) Business problem, (3) Financial consequences, (4) Risks, (5) Milestone plan, and (6) Key performance indicators. This analysis thus showed a limited agreement on what a business case for a municipality should include.

Another concern raised by the CIOs was the difficult appreciation of non-financial value in a business case. We conducted a value-focused discourse analysis of interviews with the three municipalities' CIOs and their chief executive officer. Our analysis applied a model of IS value in public administration (Bannister, 2002) and we presented its results at workshop #3. The analysis showed a predominance of foundational values relating to cost-efficiency considerations. However, their value discourses also included policy formulation, along with democratic, service, internal, and external values.

## 4.2 Improvement with a Business Case Method

Our analyses of how the municipalities developed their business cases suggested a need for a new and leaner IS business case method that addressed their needs before and after the investment decision. Our literature review of business cases identified the approach by Ward *et al* (2008) rooted in benefits management (cf. Section 2) as a basis for improving their current practices. The six steps in the Ward *et al* (2008) approach largely covered the shared elements from the analysis of the municipalities' business cases and the approach allows for non-financial benefits. We translated the method into Danish and adapted it to the municipal context, e.g., by referring to the municipality as an organization instead of a business. We iteratively (re)designed the business case method, presented and applied it, and then evaluated it through the fourth, fifth, and seventh workshops. Following these workshops, each of the three municipalities initiated their own experimentation by applying the method to develop new business cases and shared their experiences at the sixth and eighth workshop. The benefits grid based on Ward *et al* (2008), which distinguishes between benefits by stopping doing things, doing things better, and doing new things and explicates each benefit as financial, measurable, and observable, has proved to be particularly useful (Table 2). The original benefits grid (Ward *et al*, 2008) included quantifiable benefits as a fourth row, however we observed practitioners struggle in distinguishing between measurable and quantifiable benefits and thus opted to remove it.

Following the workshops focusing specifically on business cases, the last four workshops at two municipalities (Table 1, #9–#12) focused on mapping challenges and support for benefits realization. From these workshops, we learned how business cases could be central to IS benefits management; specifically, that the business case can be a central support for continuous coordination and mutual adaption between the IT department and the municipal department(s) affected by an IS investment. This reframed role of the business case as an integral part of IS benefits management rather than only a tool for investment decisions addresses the municipalities' practical needs described in the problem formulation section.

## 4.3 An IS Business Case Method for Danish Municipalities

The method includes five steps: (1) define motivation and goals, (2) identify benefits, measures, and owners, (3) structure the benefits, (4) identify costs and risks, and (5) approve (see Figure 3). We developed this method to address the needs in most municipal business cases. Unique information may be included as links to other knowledge resources. We specified and exemplified each of the five steps for the municipalities' use in a brief handbook published in a first (2011) and second (2013) updated version made available to all municipalities. The second version was an improvement based on evaluations of the first version (2011) in numerous other municipalities. The revised method (2013) was also to a larger degree positioned in a benefits management context based on our findings from the last workshops (#9–#12).

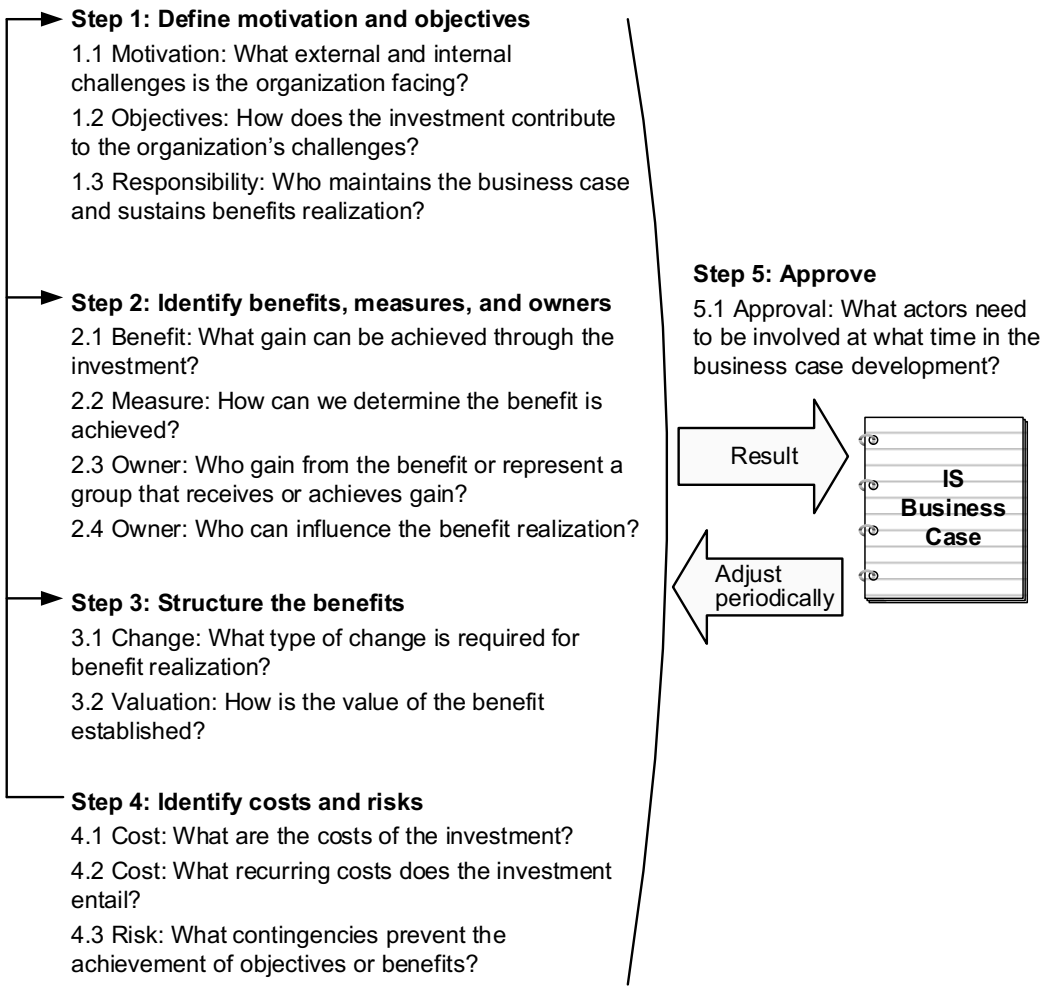


**Figure 3: The IS business case method for Danish municipalities.**

In the following, we present the five steps required to develop an IS business case (cf. Figure 3) in a condensed form. The limited content and steps support iterative development and frequent adjustment to facilitate benefits realization before, during, and after an IS implementation project (Figure 4).

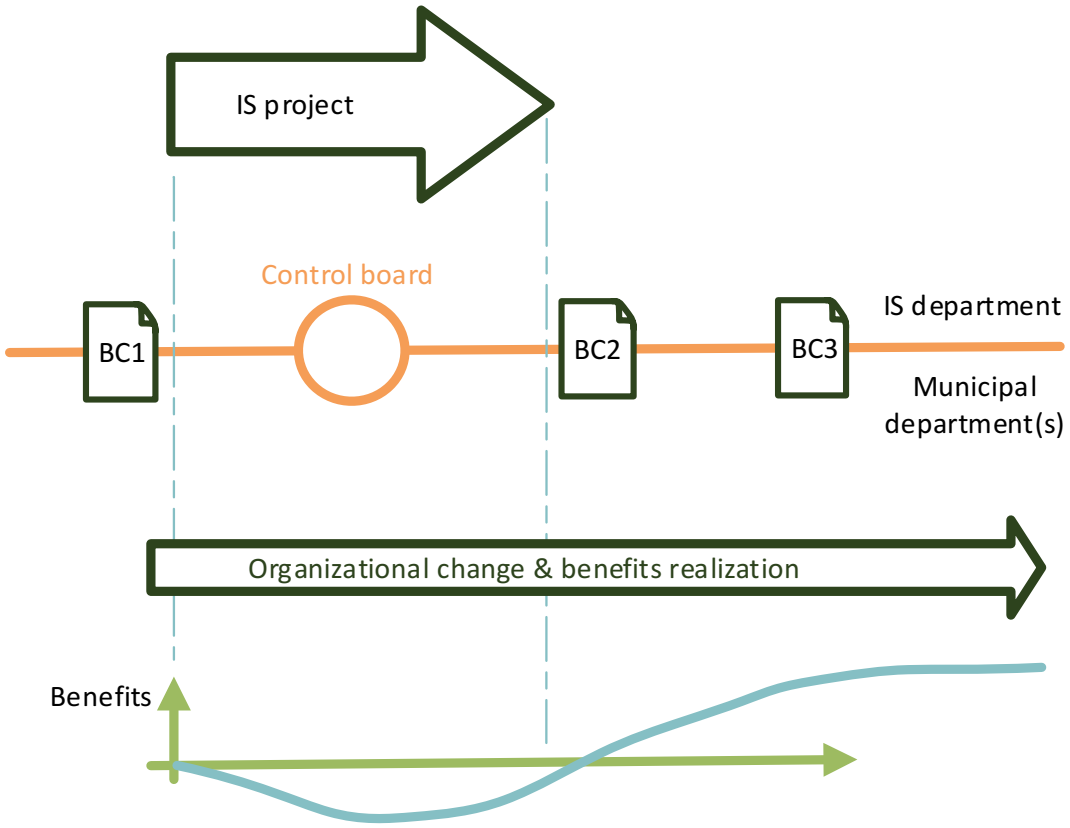


**Figure 4: The business case context.**

**Step 1: Define motivation and objectives**

The challenges faced by the organization are defined in the IS business case, the investment's contribution to these challenges, and who is responsible for the general process. The motivation is short and contains significant challenges for the organization that may be internal or external, such as new laws, benchmarking, or new standard procedures.

Objectives for the IS investment are limited in number and show how the investment contributes to the municipality's challenges in the motivation. The objectives summarize how value is created with the investment. The value is the sum of one or more specific benefits to which the IS investment contributes (these benefits are specified in step 2).

An individual responsible for managing the business case maintains focus on why the IS investment takes place – namely for sustained benefits realization. The business case manager updates the business case when planned objectives and benefits change. The planned objectives and benefits must be documented and clearly communicated to all parties involved. A business case manager ensures that the various

stakeholders are heard and that they explicitly take responsibility in the benefits realization. IS investments themselves create no value for the municipality; values are created through the organizational changes supported by the investment. Thus, the business case manager must be able to bring together and negotiate with all the different actors responsible for the organizational changes. An appropriate business case manager is an influential manger in the municipality with an interest in the IS investment's success relative to his or her management area. The business case manager may not perform all tasks personally, but can appoint a deputy recruited internally from the municipality or from an external consultancy. They must however still be indisputably where responsibility lies.

**Step 2: Identify benefits, measures, and owners**

The municipal managers affected by the IS investment identify the benefits expected from caring about the objectives. Investment objectives differ from benefits because they require agreement among all the involved decision-makers and managers. Benefits, on the other hand, are useful for specific groups or individuals and result from achieving the general investment objectives. Thus, not everyone needs to agree on all benefits, unless significant conflicts arise. A benefit has three elements: (1) the achievable gains by the IS investment, (2) a measure to determine its achievement, and (3) an owner who gains from the benefit, can give it value, and can influence its realization. IS investments with few objectives may include numerous benefits for numerous stakeholders.

A benefit often emphasized in business cases for digitalization of municipal work processes is postage savings because it is easy to determine a financial measure for them. While benefits that are easily measurable in terms of time and money may draw most attention, the benefits with more difficult measures may eventually be the most significant. The identification of benefits for the actors central to the overall benefits realization is also important to the success of an IS investment. These benefits may be fewer errors in the casework or higher employee satisfaction.

A benefit may be formulated more precisely by determining its measure. Measures such as postage savings by investing in digital communication can be relatively easy to determine monetarily. If instead the benefit is fewer errors in casework, its measure could be based on comparisons of the case and case complaints ratio before and after implementing the IS investment. Employee satisfaction can be measured through quantitative employee surveys, employee retention times, or a personnel manager's assessment before and after the IS investment is implemented. When determining benefit measures, consider whether the advantages of such a quantitative study are large enough compared to the costs of implementing it. An inexpensive alternative may be to rely on a manager's assessment.

Apart from determining a measure, an owner who gains from the benefit and can give it value and ensure its realization is identified. The benefits owner must be willing to work closely with the people

implementing the IS investment to ensure the benefit is realized. Benefit ownership refers to a named person rather than a department or function held by several people to ensure responsibility when necessary organizational changes need implementation. An owner does not necessarily realize the benefit because it may depend on workflows that are beyond the owner's direct control or influence. However, the owner is responsible for giving value to a benefit in the business case and ensures its realization. The owners can contribute their commitment and reputation to the business case – especially if the owners are experienced managers who are influential in the municipality. With redeployments or hiring related to benefits ownership a follow-up on the business case is needed. A predecessor's commitments to benefits realization must be passed on to the successor. Alternatively, it may be necessary to modify the business case by restating or perhaps even eliminating the affected benefits. In general, the formulation of a benefit involves consideration of the relationships between benefit, measure, and owner.

**Step 3: Structure the benefits**

The benefits are structured by placing them in a benefits grid, distinguishing between three types of change in the columns and three types of valuation in the rows (Table 2). Placing benefits in the grid shows what type of organizational change gives rise to the benefit and how to evaluate its scope. The benefits grid encourages more discussions and documentation of expected benefits. Using the benefits grid in all a municipality's business cases helps comparisons of investments and their mutual prioritization. The first task in using the benefits grid is to identify the type of change required for each benefit.

**Table 2: Benefits grid (adapted from Ward *et al* (2008))**

| | | *Type of change* | | |
|---|---|---|---|---|
| | | **Do new things** | **Do things better** | **Stop doing things** |
| *Type of benefit valuation* | **Financial** | | | |
| | **Measurable** | | | |
| | **Observable** | | | |

The three types of change represent different organizational challenges (Table 2). 'Stop doing things' may, for example, involve manual processing of routine matters or closing communication channels between the municipality and the citizen. However, the municipalities' wide range of service commitments and regulatory considerations may make it difficult to realize this type of benefit. 'Do things better' is a type of change relevant to many benefits in a municipal IS business case. These benefits are, however, often the least innovative and productive in the long run compared to the benefits of 'stop doing things' or 'do new things' with IT. Doing new things could include the provision of new internal or

citizen-oriented services. These benefits in particular can demonstrate the value of an IS investment outside the circle of people directly involved.

A benefit is evaluated on three levels. An important criterion for placing benefits in the three rows is the level of documentation. Each benefit's initial place in the grid is at the observable level. The benefit owner documents what is known about a benefit's value. The resulting benefits grid provides an overview of the benefits of the IS investment proposed in the business case. The grid shows a nuanced picture of the IS investment's expected value, where different people focus on different benefits. Benefit grids may be very different across municipalities – even in cases where they involve exactly the same information technology. Different municipalities have varied opportunities or willingness to explicate benefits to a financial value.

**Step 4: Identify costs and risks**

The IS investment's costs are identified and the associated risks are assessed. The costs also include those that recur after implementation such as for licences and maintenance. Most costs are easy to calculate, with the exception of costs associated with organizational change. The costs of organizational change are difficult to estimate and are often either underestimated or left out entirely.

Not all costs can be estimated in financial terms. Some of these costs may heavily influence the overall balance between costs and benefits in a business case. For example, stopping a specific service may result in a negative view of the municipality among a group of employees, citizens, or politicians. Identifying risks such as employee or citizen resistance or lacking capabilities is important in making the changes needed for realizing benefits. It is not only general risks for the IS investment that need to be identified, but also those associated with the contingencies for each benefit. The value of a high-risk benefit determines the importance of alleviating it.

The risk analysis may uncover risks of such high importance that their alleviation should be included in the business case's costs. Consideration of one step's influence on the other steps in the business case method is important. In addition to considering risks and costs in relation to the identified benefits, their relation to investment objectives may also be considered. In general, a systematic analysis of potential dependencies among the business case elements is very beneficial.

**Step 5: Approve**

A systematic walk-through of all possible relations among the individual elements of the business case is valuable before approval. The business case development should prioritize the people creating organizational change resulting in benefits to the municipality above documents, software, and hardware.

The business case summarizes a number of commitments and plans on an executive level based on negotiations with the central actors for the planned IS investment. Often a business case goes through multiple revisions before all affected parties understand and accept it. When all benefit owners and central decision-makers have signed the business case it obtains official status as a central document for managing the IS project and further benefits realization (Figure 4). The business case manager is responsible for following deviations or new opportunities that are not included in the business case over the course of the IS project and after its closure. If the distance between reality and business case becomes too great, this person initiates a revision and new approval. Most projects follow this process, resulting in numerous versions of the business case before, during, and after the IS implementation (Figure 4).

## 4.4 Lessons Learned

We present three key lessons from the problem formulation and improvement activities on the content, development, and use of IS business cases for value creation in municipalities. The business case method incorporated each lesson, allowing for their evaluation in the municipalities' IS business case practice.

**Lesson on content: Municipal organizations prompt minimalistic IS business cases.** The idea that a business case should be comprehensive seems to come either from standardization work with the national business case method or from the very wide scope of existing business case methods. The municipalities' relatively small IS budgets prompt minimalistic business cases scaled to the situation and to the size of the budget. The development of a comprehensive business case may easily become disproportionate relative to the budget of the considered IS investment. Relevant actors are diverse and come from the political parts, the administrative parts, and the IS service parts of the municipality. All actors have or should have the possibility to comprehend the business case and its related costs as well as expected benefits. However, the involved actors all belong to the same organization and thus share significant knowledge at the outset, knowledge that does not need to be documented in a business case. Furthermore, in some municipalities, the level of trust allows committing agreements to be made without extensive formal documentation in a business case. Finally, CIOs requested minimalistic business cases to make it easier to present them to overburdened decision-makers where tight meeting schedules did not allow them to read comprehensive documents. We incorporated this lesson in our method by featuring only five steps: (1) Define motivation and investment objectives, (2) identify benefits, measures, and owners, (3) structure the benefits, (4) identify costs and risks, and (5) approve.

The evaluation of the business case method in the three municipalities showed that CIOs and project managers considered its content very relevant. In order to increase the transferability of the business case method between municipalities, we have not included the municipalities' different suggestions for

additional content. That is a trade-off between on the one hand adding specificity and features that would in some situations be nice to have available and on the other hand an increased transferability and hence applicability in a wider range of situations.

**Lesson on development: The challenge of building social commitment is central to IS business case development in municipalities.** In municipalities, deciding on an IS investment and its benefits is a complex process. Establishing the commitment to a business case and hence making a decision on an IS investment is a complex undertaking. In municipalities, the influential stakeholders for an IS investment have often ill-defined formal hierarchical relationships. Compared to hierarchical organizations this informal structure requires influential stakeholders' social commitment to the realization of benefits during and after the IS project. IS project managers prefer the main responsibility for realizing benefits to be with the adopting organization. However, in the business cases we reviewed, benefits were usually presented as a common good to the municipality with very little clarity as to who was responsible for their realization. We incorporated this lesson in our method by advising municipal managers, potential users, and other affected actors that they should help identify, estimate, measure, and realize the expected benefits. Specifically, the method requires an owner of each benefit in the grid to document a specific actor's commitment to the organizational change needed to realize the benefit.

The evaluation of the business case method shows that the CIOs and the project managers had difficulty in identifying benefit owners. This difficulty could reflect their previous practice of not specifying benefit owners, but instead presenting benefits as a common good to the municipality assumed to be realized with the IS implementation. Some project managers also resisted involving line managers affected by an IS investment in estimating benefits for a business case. The project managers feared that these managers' estimates would be too pessimistic, thereby making the business case less convincing – even though the line managers in the end are needed to realize the planned benefits. The CIOs and project managers still found benefits ownership meaningful and necessary because it clarifies potential problems in later benefits realization. In addition, the business case method's inclusion of non-financial benefits was useful for achieving social commitment from line managers affected by an IS investment. They appreciated the opportunity to describe benefits in non-financial terms because decentralized municipal managers often fear the risk of having all documented financial benefits taken by central management with no consideration of whether benefits were realized or not. Financial benefits were, however, still the main concern of CIOs and project managers in creating and maintaining the commitment of top management to the IS investment described in the business case.

**Lesson on use: The multiple purposes for IS business cases in municipalities prompt dynamic use.** A business case may provide strong support for both the IS investment decision and benefits management. The business case's formalized and rational argumentation for an IS investment is usable in scoping, designing, deciding, evaluating, implementing, and realizing benefits. The municipalities could therefore further capitalize on their business case development by considering its use beyond the IS investment decision. We incorporated this lesson in our method by providing an easy overview of benefits, measures, and owners in a benefits grid (Table 2). The brevity of business cases also supports dynamic use by easing updates when conditions and benefits change dynamically (but in a controlled manner) during the course of the IS project and the following benefits realization. The identification of responsibility for the business case (step 1.3) and continuous stakeholder involvement (Step 5.1) makes the business case particularly useful for benefits management before, during, and after the IS implementation project (Figure 4).

In the evaluation of the business case method the involved CIOs and project managers considered the focus on later benefits realization very important. Their needs for a business case are much greater after the IS investment decision. Dynamic use may require a transformation of pre-decision or external business cases to be useful post-decision in and after IS implementation. The evaluations showed that practitioners experienced the transformation of business cases based on methods other than ours as very useful. The workshops on benefits realization (Table 1, #9–#12) showed that the business case could facilitate a benefits management focus among both CIOs and operational managers by maintaining the personalized and formalized commitments to change beyond the decision-making forums (Figure 4).

# 5. Discussion

In the following, we review the findings from the action research study in relation to our research question: *How can we improve the usefulness of business cases for value creation in IS projects?*

We developed a business case method to improve value creation in IS projects based on previous research (Ward *et al*, 2008) and a series of workshops with managers in Danish municipalities. From this research, we elicited lessons on the content, development, and use of IS business cases.

The criterion of usefulness embedded in the research question is an important part of our claim.

There was a problem to begin with, or in broader terms a problematic situation in the participating municipalities (cf. Section 4.1). Their business case practices were cumbersome and the methods employed did not match their need to develop business cases efficiently and effectively. To alleviate this problem situation it was not simply a question of using existing business case methods as these were

investigated and did not match the municipalities' needs. With a starting point in an existing business case method and a broader theoretical understanding of IS value the method was iteratively refined and came to embed a framework of IS value and value creation. The particular way it was refined through iterative application and evaluation led to the method's usefulness.

The usefulness can be assessed in two ways (Nielsen, 2007). Usefulness in action research means that there is practical success and readiness on the part of the participating researchers and practitioners to acknowledge that learning has occurred (Checkland, 1981), and that they are willing to act on the findings (Baburoglu & Ravn, 1992). First, during the iterating activities of applying the method and evaluating the experience there was immediate feedback in the workshops (Table 1, #4–5, 7, 9–10). The evaluation was explicit and contained both open questions and more closed questions on the usefulness of specific items in the method. For example, there was a recurring discussion in the evaluation of types of benefits valuation (cf. Table 2) that eventually led to a clarification of the concepts and how they are defined. Later, in the closing activities (Table 1, #11–12), the usefulness was again explicitly assessed. The assessment was extended beyond the immediate scope of a business case method as it included a mapping of business cases to the wider context of benefits management in order to assess how the method contributed. The practitioners' explanation of usefulness focused on what has been presented as lessons learned (cf. Section 4.4). In addition, they particular emphasized the benefits grid (Table 2) as a practical overview showing the relationships between the many and diverse values being pursued for a specific IS.

Second, on the question of whether practitioners are willing to act on the findings, we observe that the method is now in wider use in several municipalities. This adoption of the method is more widespread in the municipalities participating in the action research. In these municipalities there is already experience with the method that is less conveyed in the handbook. Other municipalities have heard about the method either from participating municipalities or through seminars held by the researchers. Nevertheless, it is reasonable to claim that actors are willing to act on the findings by adopting the method.

Our action research and the findings relate to extant research in the following way. Our research responds to the calls for more empirical research on making IS benefits management more accessible for practitioners (Paivarinta *et al*, 2007; Hesselmann & Kunal, 2014), guide how practitioners should take action in the e-government development process (Heeks & Bailur, 2007), and provides new knowledge on the content, development, and use of IS business cases in practice (Berghout & Tan, 2013; Maes *et al*, 2014). With Table 3, we claim the three lessons learned are findings that contribute to previous research on business cases for IS value creation (Ward & Daniel, 2006; Ward *et al*, 2008) and address a call for research on this area of concern (Maes *et al*, 2014). These findings contribute constructive knowledge

from a functional pragmatism perspective that should be useful for local as well as general practices (Goldkuhl, 2012). We made inquiries into IS business case methods and value creation practices, and through our engagement in change, we collected data through intervention and assessment to elicit findings that are not only useful for IS professionals but also make a distinct contribution to research (see Table 3).

**Table 3: Key findings of the study**

| Finding | Method support | Related research on business cases |
|---|---|---|
| **Include minimal contents**<br>Minimizing business case documentation beyond the objectives, benefits, costs, and risks required for deciding on the proposed IS investment and for committing individuals to the benefits realization. | - Few specified steps (cf. Figure 3).<br>- Responsibilities and ownership enforce personal rather than codified knowledge sharing (cf. steps 2 and 5). | This finding opposes the claim that the comprehensiveness of the business case has a significant impact on the success of IS investments from the Ward *et al* (2008) method.<br>Maes *et al* (2014) summarize an extensive amount of content elements to a business case, adding to the Ward *et al* (2008) method, but do not question the extent to which more continues to be better. Berghout and Tan (2013) found that the more elaborate IS business cases have higher initial cost estimates and suggest this improves the investment decisions. |
| **Develop social commitment**<br>Iterative development of the IS business case based on both formal and informal negotiation and problem-solving with decision-makers and organizational change agents that commits them to the benefits realization. | - Commitment development (step 1) and distributed benefits (step 2).<br>- Named owners estimate and commit to realizing benefits (step 2). | This finding extends the Ward *et al* (2008) method's focus on building commitment from business managers by introducing a more iterative approach to developing and maintaining commitment before and after the IS implementation project.<br>Maes *et al* (2014) supports the finding that stakeholders are an integral part of business case development based on research, stating that multiple stakeholders can be involved (Fonstad & Robertson, 2006; De Haes *et al*, 2011). However, Maes *et al* (2014) call for further research of stakeholder roles and impact. |
| **Structure dynamic use**<br>Preparing the use of a business case beyond argumentation for an IS investment includes pre- and post-decision scoping, designing, evaluating, implementing, redeciding, and realizing benefits. | - Continual adjustment before, during, and after the IS implementation project (cf. step 5 and Figure 4). | This finding diverges from the Ward *et al* (2008) method, which focuses more narrowly on supporting investment decisions and evaluation supplemented by benefit management plans (Ward & Daniel, 2006), rather than putting the business case at the centre of the coordination between IS and business throughout the life cycle.<br>Maes *et al* (2014) support the finding stating that *it is not just about developing a business case*, referring to research linking continuous development and use to successful investments (Al-Mudimigh *et al*, 2001; Gattiker & Goodhue, 2005; Krell & Matook, 2009; Law & Ngai, 2007; Altinkemer *et al*, 2011). |

**Include minimal contents** (Table 3) is comparable to the trend in software development moving from the extensive planning- and documentation-driven methods towards the agile and lightweight methods (Dybå & Dingsøyr, 2008; Vijayasarathy & Turk, 2008). Minimalistic business cases and the following project management may not only facilitate the internal IS management in a municipal organization, but also ease its ability to collaborate with agile system development companies. An ability to collaborate with such

agile companies not only introduces more vendor options but also an opportunity to select vendors that are more successful in their software development endeavours (Reifer, 2002; Dybå & Dingsøyr, 2008).

**Develop social commitment** (Table 3) corroborates a similar point made by Ward *et al* (2008), defining a benefits owner as an individual who personally gains or whose department gains from the IS investment. However, our research shows that a benefits owner could also be someone that is influential in later benefits realization. It depends on the organizational culture (Cameron & Quinn, 2005) and level of management influence in the organization (Kotter, 1985). Municipal departments have several simultaneous goals and agendas; hence, we should not see the benefits owners solely as managers in a hierarchical organization. The development of an IS business case in municipal organizations involves both formal and informal negotiation and problem-solving. Facilitating these processes supports the creation and maintenance of social commitments. Social commitment is a relation between at least two actors, where one actor is committed to another actor to carry out an act, potentially witnessed by a third actor (Castelfranchi, 1995). The social commitment is essential because the frequently divided authority over IS decisions (Chircu & Lee, 2005) and large number of influential stakeholders in public sector organizations (Bannister, 2002) make IS business case development and use particularly difficult. Previous research also argues that commitment is an important issue in e-government projects because it may change for various reasons over the course of the project (Pan *et al*, 2006). Our method exploited previous research findings that assignment of responsibilities and accountabilities in a business case may increase individuals' commitment (Franken *et al*, 2009; Maes *et al*, 2014) while emphasizing and supporting its maintenance over time.

**Structure dynamic use** (Table 3) exploits the IS business case to strengthen different benefits realization capabilities in planning, delivery, review, and exploitation (Ashurst *et al*, 2008). The business case may be particularly helpful after the IS investment decision in managing expectations from both the affected organization and IS project. A business case can be placed in the context of benefits realization activities and reflect how organizations realize benefits through technical and organizational change over time. Our findings extend the research suggesting that the business case is a useful instrument in the IS implementation (Gattiker & Goodhue, 2005; Law & Ngai, 2007) and that it can be fundamental to benefits realization (Curley, 2006).

Our action research study and resulting business case method also provide a more general contribution to research on IS *value creation*. Previous research has examined the substantial body of IS literature on value and criticized how the discussion frays into many lines of thought in various directions that make the value construct ambiguous and fuzzy (Schryen, 2013). Our action research found that this

characterization is also prevalent in practice (particularly in public organizations). However, instead of narrowing down the value construct, we show the usefulness of a multidimensional IS value construct that is implicitly embedded in practice but simultaneously can be implicitly reflected in a supporting artefact such as a business case. This finding corroborates findings from previous action research approaching IS investments as involving design thinking (Frisk *et al*, 2014) and multi-criteria evaluation using value dials (Frisk *et al*, 2015). We employed three dimensions of IS value emphasizing the 1) monetary and pluralistic view, 2) summative and formative purpose, and 3) artefact and social manifestation (Figure 1). These dimensions are grounded in previous research (e.g. Doherty *et al*, 2012; Rose & Persson, 2012; Frisk *et al*, 2014; Rose *et al*, 2015b; Tallon, 2014; Yassaee & Mettler, 2015), however research efforts may often emphasize a single dimension rather than their concurrent integration. We call for further IS value research that synthesizes and integrates multiple dimensions of IS value in various configurations both from a theoretical and empirical starting point. The three dimensions guiding our action research (Figure 1) were fruitful in our area of study. However, we are confident that there are highly interesting research opportunities for exploring additional dimensions, configurations, and operationalization of IS value. In relation to business cases, further research can also look in more detail at the diffusion and deployment of such a method in different types of projects and organizations. In particular, the alignment of business case methods with agile software development is an especially important concern that spans across the two fields of research in IS value creation and value-based software engineering.

# 6. Conclusion

We applied action research to study how municipal organizations can improve value creation in IS projects with business cases. Our action research led us through several iterations through which we elicited lessons and then gradually designed a business case method for Danish municipalities. Through these iterations, we collected empirical data about the problem situations, the lessons, and the method's usefulness. We explained how the lessons came from practice in the municipalities. These lessons are our findings to guide CIOs and project managers working with IS business cases:

1. Include minimal contents.
2. Develop social commitment.
3. Structure dynamic use.

The study employed a framework of IS value as consisting of a 1) monetary and pluralistic view, 2) summative and formative purpose, and 3) artefact and social manifestation. This framework guided our action research on business cases and points to new directions for research on IS value creation:

specifically, the empirical and theoretical exploration, synthesis, and integration of multiple dimensions of IS value in business cases and other activities and work artefacts in IS value creation.

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